



# **SOHO Internet Telephony PBX System**

## **IPX-600 User's manual**

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# Chapter 1

## Introduction



### Overview

PLANET IPX-600 IP PBX Systems are designed and optimized for the SMB and SOHO daily communications. Due to the IPX-600 is so easy to configure a fully working system with the convenience and cost advantages, the IPX-600 is the next generation voice communication platform for the SOHO and Home Office. Designed as an open, scalable and highly reliable telephony solution, the future IP PBX System offers all of the essential features of telephony which is required for small business/enterprise users on their telecommunication/data needs.

The IPX-600 is an embedded system with built-in SIP proxy server and NAT functions that make it perfect for enterprise usage. The IPX-600 provides not only basic call functions on traditional PBX System but also many advanced functions including voice mail to email, web management, roaming etc. It is impossible on traditional PBX. Designed to run on a variety of VoIP applications, the IPX-600 provides centralized call control, auto-attendant, voice conferencing and IP-based communications. The IPX-600 utilizes standard phone lines via an interfaces of FXO gateway to become a feature-rich PBX System that supports seamless communications among existing local calls, IP phones and SIP-based endpoints, including low cost long distance service, telephone number portability and one network for both voice and data.

The system's stability is established by a very stable embedded system platform and the SD (Secure Digital) memory card storage. Since all the system configurations (including voice mail) are stored in the SD card storage, you could restore the whole system by just putting the SD card to a new IPX-600 if the system is damaged. There is no re-configuration needed. In this way, the effort of maintenance is minimized.

With the IPX-600, standard SIP phones can be easily integrated in your office. You may integrate PLANET IP Phone VIP-154T series, IPX-600, and the VIP-156 / VIP-157 of ATA (analog telephone adapter) series. And Gateway serves VIP-281/VIP-480/VIP-880/VIP-1680/VIP-2480 to build up the VoIP network deployment in minutes.

Allowing distributed IP technology to meet traditional voice services with proactive managed interface, the IPX-600 for enterprises in the daily business processes can make people more productive, more intelligent tasks and more customer satisfaction.

## **IPX-600 Features**

- **PBX Features**

- Automated Attendant (AA)
- Interactive Voice Responses (IVR)
- Voicemail support
- Personal Voicemail Greeting
- DID to User
- DID to Hunting Group – Round Robin, Parallel, Random
- Least Cost of Call Routing (20)
- Detailed Call Record
- User Management via Web Browser
- Call/Pickup Group
- Display 200 Registered User's Status: Unregistered / Registered / On-Call
- Outgoing Call Block List (10)

- **Call Features**

- Call Forward Immediate
- Call Forward on Busy
- Call Forward on No Answer
- Do Not Disturb (Forward to Voicemail)
- Direct Inward Dialing (DID)
- Call Pickup / Call Park
- Call Retrieval
- Caller ID/ Dial By Name
- Roaming Extensions
- Music on Hold / Music on Transfer
- Call Queuing
- Call Transfer / Call Hold / Call Waiting
- Three-way conference with feature phones (VIP-154T series, VIP-155PT and ATA series)

- **Router/Firewall Features**

- DHCP Server for LAN Users

- Access Control / URL Filter
- Virtual Server / DMZ / Special Application
- Static Route
- Pass-through
- UPnP
- DoS

## Package Content

The contents of your product should contain the following items:

SOHO IP PBX unit

Power cord

Quick Installation Guide

User's Manual CD

RJ-45 cable x 1

## Physical Details

The following figure illustrates the front/rear panel of IPX-600.

### Front Panel Indicators

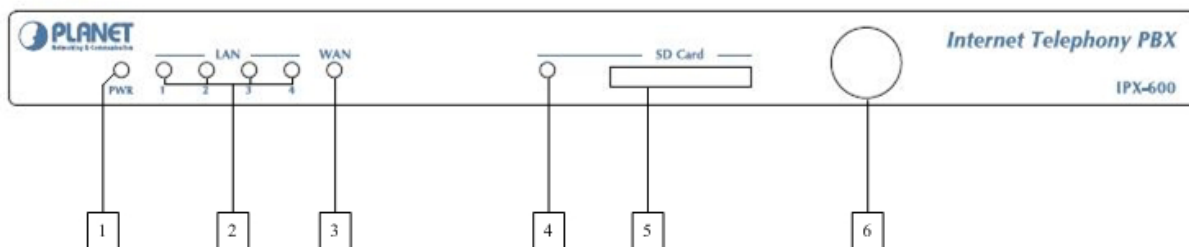


Figure 1. Front Panel of IPX-600

1	<b>PWR</b>	The green light goes on when power on.
2	<b>LAN</b>	The green light goes on when LAN was connected successfully. The green light goes flashing when data is transmitting.
3	<b>WAN</b>	The green light goes on when network connection established. The green light goes flashing when data traffic on cable network.
4	<b>SD Card</b>	When the system boots up and mount the SD card successfully, the SD card LED will be on. Since the system doesn't support hot

		plug/unplug, the LED won't be turned off.
<b>5</b>	<b>SD Card Socket</b>	Insert the SD Card into the socket.
<b>6</b>	<b>Power Switch</b>	Press this button to power on the machine, and press it again to power off.

Table1. Front Panel description of IPX-600

**Hint**

Please pay attention to that the SD Card Socket doesn't support hot plug/unplug. So that please power off the machine before plug/unplug the SD card into socket.

**Rear Panel Indicators**

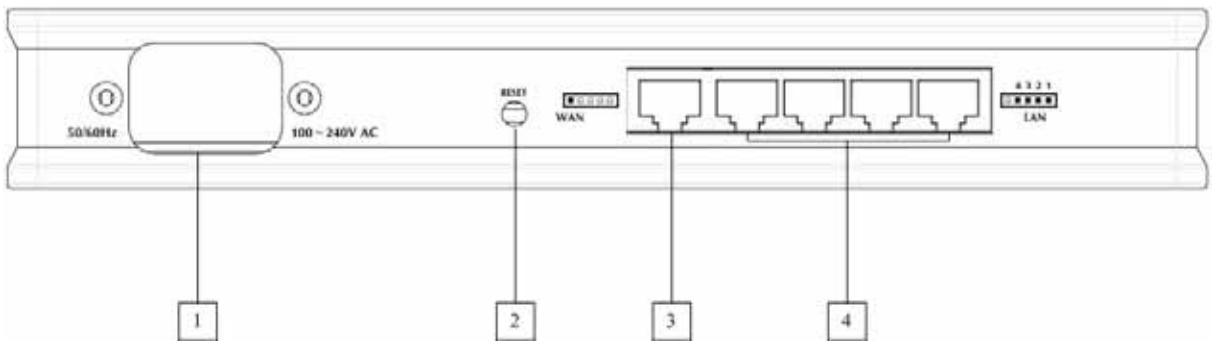


Figure 2. Rear Panel of IPX-600

<b>1</b>	<b>Power</b>	The power cord connects here. The input voltage range is 100 ~240V AC, 50/60Hz.
<b>2</b>	<b>Reset</b>	The reset button, when pressed, resets the IP PBX without the need to unplug the power cord.
<b>3</b>	<b>WAN</b>	The WAN port supports auto negotiating Fast Ethernet 10/100Base-TX networks. This port allows your IP PBX to be connected to an Internet Access device, e.g. router, cable modem, ADSL modem, through a CAT.5 twisted pair Ethernet cable.
<b>4</b>	<b>LAN</b>	The LAN port supports 4 10/100Base-TX switch hub networks. These 4 ports allow your PC or Switch/Hub to be connected to the voice gateway through a CAT.5 twisted pair Ethernet cable.

Table 2. Rear Panel description of IPX-600

# Chapter 2 2

## Preparations & Installation

### Physical Installation Requirement

This chapter illustrates basic installation of IPX-600

- Network cables. Use standard 10/100BaseTX network (UTP) cables with RJ-45 connectors.
- TCP/IP protocol must be installed on all PCs.

For Internet Access, an Internet Access account with an ISP, and either of a DSL or Cable modem (for WAN port usage)

### Administration Interface

---

PLANET IPX-600 provides GUI (Web based, Graphical User Interface) for machine management and administration.

### Web configuration access:

To start IPX-600 web configuration, you must have one of these web browsers installed on computer for management

- Microsoft Internet Explorer 6.0 or higher with Java support

Default LAN interface IP address of IPX-600 is **192.168.0.1**. You may now open your web browser, and insert **192.168.0.1** in the address bar of your web browser to login IPX-600 web configuration page.

IPX-600 will prompt for logon username/password, please enter: **admin / 123** to continue machine administration.



Figure3. Input prompt

After input username/password, it will get into the configuration main men of IPX-600.

System	
Product Model	IP PBX
Firmware Version	v1.02.05
Firmware Date	2007/01/26 12:05:37
NAT	Enable
SD Card	Unmounted
Time	Not Available

LAN	
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
MAC Address	00:30:4F:6D:F6:0C
DHCP Server	Enable
Received	12251 packets, 1012258 bytes
Transmitted	325 packets, 154228 bytes
Dropped	0 packets

WAN	
Connection Type	Static
IP Address	172.16.0.1
Subnet Mask	255.255.0.0
Default Gateway	172.16.0.254
DNS1 IP Address	168.95.1.1
DNS2 IP Address	168.95.192.1
MAC Address	00:30:4F:6D:F6:0B
Received	0 packets, 0 bytes
Transmitted	0 packets, 0 bytes
Dropped	0 packets

Figure 4. First web page of IPX-600

### Note

Please locate your PC in the same network segment (192.168.0.x) of IPX-600. If you're not familiar with TCP/IP, please refer to related chapter on user's manual CD or consult your network administrator for proper network configurations.

### LAN/WAN interface quick configurations

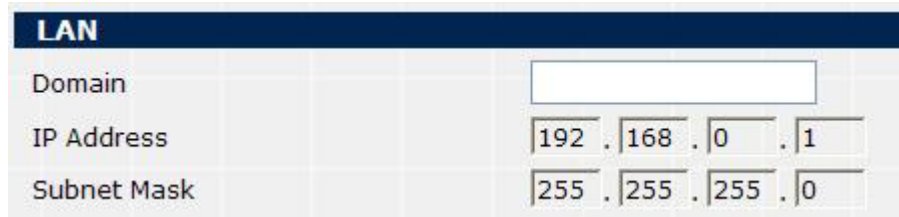
Nature of PLANET IPX-600 is an IP Sharing (NAT) device, it comes with two default IP addresses, and default LAN side IP address is "192.168.0.1", default WAN side IP address is "172.16.0.1 (port number is 8080). You may use any PC to connect to the LAN port of IPX-600 to start machine administration.

### Hint

In general cases, the LAN IP address is the default gateway of LAN side workstations for Internet access, and the WAN IP of IPX-600 are the IP address for remote calling party to connect with.

## LAN IP address configuration via web configuration interface

Execute your web browser, and insert the IP address (default: **192.168.0.1**) of VIP in the address bar. After log on machine with username/password (default: **admin / 123**), browse to “**Network Setup**” configuration menu:



The screenshot shows a web configuration interface for LAN settings. It has a dark blue header with the word "LAN" in white. Below the header, there are three rows of configuration fields. The first row is "Domain" with an empty text input box. The second row is "IP Address" with four separate input boxes containing the digits "192", "168", "0", and "1" respectively, separated by dots. The third row is "Subnet Mask" with four separate input boxes containing the digits "255", "255", "255", and "0" respectively, separated by dots.

Figure 5. LAN setting

### Parameter Description

Field	Description
Domain	IPX-600 has the DHCP server for the LAN users. If you fill in the domain, it will bring the domain name to the LAN users in dhcp packet.
IP address	LAN IP address of IPX-600 <b>Default: 192.168.0.1</b>
Subnet Mask	LAN IP address of IPX-600 <b>Default: 255.255.255.0</b>

Table 3. LAN setting description

### Hint

It is suggested to keep the DHCP server related parameters in default state to keep machine in best performance.

After confirming the modification you've done. Please click on the “**Apply**” button to make the changes effective. System will restart and show the following screen:

**System restarting, please wait ... 60**

**Updating your configuration now...**

**You will be redirected to the configuration page in 60 seconds.**

**If not, you can click [HERE](#) to return to the configuration page.**

Figure 6. System restarting prompt



## WAN IP address configuration via web configuration interface

Execute your web browser, and insert the IP address (default: **http://172.16.0.1:8080**) of IP PBX in the address bar. After log on machine with username/password (default: **admin / 123**), browse to **"Network Setup"** configuration menu, you will see the configuration screen below:

➤ **Static IP:**

The screenshot shows the WAN configuration interface with the following settings:

WAN	
Wan Connection Type	Static IP
IP Address	172 .16 .0 .1
Subnet Mask	255 .255 .0 .0
Default Gateway	172 .16 .0 .254
DNS1 IP Address	168 .95 .1 .1
DNS2 IP Address	168 .95 .192 .1

Figure 7. WAN setting - Static IP

Connection Type	Data required.
<b>Wan Connection Type</b>	If you are a leased line user with a fixed IP address, fill out the following items with the information provided by your ISP.
<b>IP Address</b>	check with your ISP provider
<b>Subnet Mask</b>	check with your ISP provider
<b>Default Gateway</b>	check with your ISP provider
<b>DNS1 IP Address</b>	check with your ISP provider
<b>DNS2 IP Address</b>	check with your ISP provider

Table 4. WAN setting description

➤ **Obtain an IP Automatically (Dynamic IP):**

The screenshot shows the WAN configuration interface with the following settings:

WAN	
Wan Connection Type	Obtain an IP Automatically
Clone MAC	00 -00 -00 -00 -00 -00 <input type="checkbox"/> Enable

Figure 8. WAN setting - DHCP

Connection Type	Data required.
<b>Wan Connection Type</b>	If you are connected to the Internet through a Cable modem line then a dynamic IP address will be assigned.
<b>Clone MAC</b>	For US cable modem ISP, it will send you one NIC card. You cannot access the internet with other mac address,

	so you have to change your NAT router's mac address to the NIC card mac address.
--	--

Table 5. WAN setting description

➤ ADSL Dial-Up User (PPPoE Enable)

The screenshot shows a configuration window titled 'WAN'. The 'Wan Connection Type' is a dropdown menu set to 'PPPoE'. Below it are text input fields for 'Login ID', 'Password', 'Service Name', and 'AC Name'. The 'MTU' field contains the value '1492'. The 'Dial On Demand' option is unchecked, with an 'Idle Timeout' of '0' seconds. The 'Auto Reconnect' option is checked. At the bottom right, there are 'Connect' and 'Disconnect' buttons.

Figure 9. WAN setting - PPPoE

Connection Type	Data required.
<b>Wan Connection Type</b>	Some ISPs provide DSL-based service and use PPPoE to establish communication link with end-users. If you are connected to the Internet through a DSL line, check with your ISP to see if they use PPPoE. If they do, you need to select this item.
<b>Login ID</b>	Enter User Name provided by your ISP
<b>Password</b>	Enter Password provided by your ISP
<b>Service Name</b>	Enter you SIP Provider's name
<b>AC Name</b>	Some PPPoE server requires you to fill in the AC Name.
<b>MTU</b>	MTU is the "Maximum Transfer Unit" that is the maximum payload size that can bring by the PPPoE
<b>Dial On Demand</b>	It means when there are no traffic after certain seconds, it will disconnect the PPPoE connection.
<b>Auto Reconnect</b>	It means keep alive

Table 6. WAN setting description

**i** Hint

Please consult your ISP personnel to obtain proper PPPoE/IP address related information, and input carefully. If Internet connection cannot be established, please check the physical connection or contact the ISP service staff for support information.

# Chapter 3

## Web Configurations

# 3

### Configuring and monitoring your IPX-600 from web browser

The IPX-600 integrates a web-based graphical user interface that can cover most configurations and machine status monitoring. Via standard, web browser, you can configure and check machine status from anywhere around the world.

#### Overview on the web interface of IPX-600

With web graphical user interface, you may have:

- ◆ More comprehensive setting feels than traditional command line interface.
- ◆ Provides user input data fields, check boxes, and for changing machine configuration settings
- ◆ Displays machine running configuration

To start IPX-600 web configuration, you must have one of these web browsers installed on computer for management

- ◆ Microsoft Internet Explorer 6.0 or higher with Java support

#### Manipulation of IPX-600 via web browser

##### Log on IPX-600 via web browser

After TCP/IP configurations on your PC, you may now open your web browser, and input **http://192.168.0.1** to logon SOHO IP PBX web configuration page.

Browse any configuration menu, IPX-600 will prompt for logon username/password, there are two level accounts for manage:

Account Name	Password	Level Description
admin	123	Administrator user can manage all of configuration.
(User number)	(User password)	All of the extension users just can manage part of configuration.

Table 7. Log in account description

**PLANET** Networking & Communication **PLANET PBX System Setup Interface**

**Status**  
**Network Setup**  
**DHCP Server**  
**IP PBX**  
**NAT Advanced**  
**Log**  
**Management**

System	
Product Model	IP PBX
Firmware Version	v1.02.05
Firmware Date	2007/01/26 12:05:37
NAT	Enable
SD Card	Unmounted
Time	Not Available
LAN	
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
MAC Address	00:30:4F:6D:F6:0C
DHCP Server	Enable
Received	12251 packets, 1012258 bytes
Transmitted	325 packets, 154228 bytes
Dropped	0 packets
WAN	
Connection Type	Static
IP Address	172.16.0.1
Subnet Mask	255.255.0.0
Default Gateway	172.16.0.254
DNS1 IP Address	168.95.1.1
DNS2 IP Address	168.95.192.1
MAC Address	00:30:4F:6D:F6:0B
Received	0 packets, 0 bytes
Transmitted	0 packets, 0 bytes
Dropped	0 packets

Figure 10. First web page of IPX-600

## Status

Click the **Status** item on the main menu; you will see the following web page.

Current state information	
<b>System</b>	Shows the firmware version and the other information
<b>LAN</b>	Shows the LAN port connecting state and current settings
<b>WAN</b>	Shows the WAN port connecting state and current settings

Table 8. Status items description

System	
Product Model	IP PBX
Firmware Version	v1.02.05
Firmware Date	2007/01/26 12:05:37
NAT	Enable
SD Card	Unmounted
Time	Not Available
LAN	
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
MAC Address	00:13:4B:6D:F6:0C
DHCP Server	Enable
Received	1207 packets, 132414 bytes
Transmitted	743 packets, 482765 bytes
Dropped	0 packets
WAN	
Connection Type	Static
IP Address	172.16.0.1
Subnet Mask	255.255.255.0
Default Gateway	172.16.0.254
DNS1 IP Address	168.95.1.1
DNS2 IP Address	168.95.192.1
MAC Address	00:13:4B:6D:F6:0B
Received	0 packets, 0 bytes
Transmitted	0 packets, 0 bytes
Dropped	0 packets

Figure 11. Status page of IPX-600

## Network Setup

Click the **Network Setup** item on the main menu; you will see the following web page.

1. **LAN:** You can change the LAN IP Address and Subnet Mask of the IPX-600 here. If there is already another DHCP server or another NAT/Router device existed in the LAN network, you must make sure that they are not using the same sub network.
2. **WAN:** You can configure the WAN IP as PPPoE, DHCP or static IP depending on the internet connection method provided for the IPX-600 in the office.
3. **NTP:** To get the real time from internet, you need to choose the correct Time Zone of your area. If the default NTP servers cannot work in your area, you have to find the workable NTP servers and set the values in these fields. (In almost all cases, just use the default NTP server and everything should be fine).

The screenshot displays the Network Setup page for the IPX-600 device, organized into three main sections: LAN, WAN, and NTP.

- LAN Section:** Includes a Domain field, an IP Address field set to 192.168.0.1, and a Subnet Mask field set to 255.255.255.0.
- WAN Section:** Includes a Wan Connection Type dropdown menu set to Static IP, an IP Address field set to 172.16.0.1, a Subnet Mask field set to 255.255.0.0, a Default Gateway field set to 172.16.0.254, a DNS1 IP Address field set to 168.95.1.1, and a DNS2 IP Address field set to 168.95.192.1.
- NTP Section:** Includes a Time Zone dropdown menu set to ASIA/TAIPEI, an NTP Server 1 field set to time.windows.com, and an NTP Server 2 field set to time-b.nist.gov.

At the bottom of the form, there are two buttons: **Apply** and **Cancel**.

Figure 12. Network Setup page of IPX-600

## DHCP Server

By clicking the **DHCP Server** page, you can configure the DHCP server of the IPX-600. You can specify the **DHCP Server IP Pool Start IP** and **DHCP Server IP Pool End IP**.

IPX-600 could possibly get the DNS server from ISP (using PPPoE or DHCP), if you want this DNS server information passed to DHCP client, you can check on **Provide Real DNS Server** option.

In the **Dynamic DHCP Client List**, you can see the active DHCP client lists.



	call is connected between registered devices. IPX-600 cannot support <b>Inband</b> DTMF when the <b>Remote/PBX Codec</b> is G.723 or G.729.
<b>Authentication</b>	This field can determine if the other SIP devices needed to be authenticated if they try to register to IPX-600. If this field is enabled, only those devices with the correct accounts listed in the User Management page are allowed to register into IPX-600
<b>Concurrent Calls per User</b>	This is the max allowed calls for a single IP Phone in the same time. If want the call waiting function to work, set this field to a value bigger than two.
<b>Maximum System Parallel Call</b>	This is the max allowed calls for the whole IPX-600 system in the same time, that includes inter-extension calls and incoming and outgoing calls. The allowed value for this field is between 1 and 60.
<b>Inter-PBX Call In Prefix</b>	This is the prefix number for incoming call from other IPX-600, with this prefix; the calls between IPX-600 could be like an inter-extension calls. The way it works like this - the dialed number outside of the other IPX-600 will be prefixed with this prefix number , and before incoming into this IPX-600, this prefix number will be removed, and call into the specific extension number.

Table 9. General setting description

General	
Native Language	English
WAN IP	172.16.0.1
LAN IP	192.168.0.1
Port	5060 (1~65535)
RTP Port Range	10000 ~ 10200
Remote/PBX Codec	G.729
DTMF	RFC2833
Authentication	YES
Concurrent Calls per User	2 (1~3)
Maximum System Concurrent Calls	60 (1~60)
Inter-PBX Call in Prefix	91

Figure 14. System setting - General



➤ Voice Mail

Parameter description:

Field	Description
<b>Send Voicemail to E-mail</b>	You can send the voicemail to your e-mail account by enabling this option.
<b>Go to Voicemail after Ringing</b>	You can set the ringing time before go to the voicemail.
<b>Maximum Time of a Voicemail</b>	You can set the maximum recording time length of a specific voicemail. The allowed value for this field is between 10 and 254 seconds.
<b>Maximum Time of Voicemail per User</b>	You can set the total time length of all the voicemails for a single user. The allowed value for this field is between 10 and 254 seconds.
<b>Maximum Time of Voicemail for System</b>	IPX-600 can store up to 1200 seconds of total voicemails in the system DRAM.
<b>Maximum Time of Voicemail for SD card</b>	If the external 512 MB SD card is plugged into the system, IPX-600 can store up to 12000 seconds of total voicemails in this SD card.
<b>Local Voice Mail Access Number</b>	By dialing <b>9999</b> from your IP Phone, you can access this IP Phone's voicemail records. The IVR system will ask for a password, just press the password of the SIP account to access your voicemail records. This local access number could be changed.
<b>Global Voice Mail Access Number</b>	By dialing <b>9998</b> from any other IP Phone, you can still access your own voicemail records. The IVR system will first ask for your mailbox number, just press the extension number of your IP Phone. The IVR system will then ask for a password, just press the password of the SIP account to access your voicemail records. This global access number could be changed.

Table 10. Voice mail setting description

Voice Mail	
VM Status	Used: 0 seconds, Available: 2857 seconds
Maximum Time of a VM	<input type="text" value="30"/> seconds (10~254)
Maximum Time of VM per User	<input type="text" value="120"/> seconds (10~254)
Maximum Time of VM for System	2857 seconds
Local VM Access Number	<input type="text" value="9999"/>
Global VM Access Number	<input type="text" value="9998"/>

Figure 15. System setting – Voice Mail



➤ Call Detailed Record

Parameter description:

Field	Description
<b>CDR Status</b>	This will show how many CDR records existed in the system and how many available records can be stored in the system.
<b>Maximum CDR for System</b>	This will show how many CDR records you can store in the system.
<b>Send CDR via E-mail</b>	Choose YES if you want to send the CDR records via E-mail.
<b>Send CDR via E-mail Period</b>	You want to send CDR via E-mail daily, weekly or monthly.
<b>Send CDR via E-mail Time</b>	Once you determine the period, you need to select the precise time.
<b>Delete CDR after Send the E-mail</b>	Select YES if you want to delete the records once you have send the E-mail.
<b>E-mail</b>	Fill in the E-mail address you want to receive the CDR records.
<b>Send CDR immediately when the CDR Exceed the Maximum Value</b>	There are two cases that the system will send the CDR via E-mail. One is the configured period, and the other is when the CDR records are full. Once the CDR is full, the system might lose some CDR records. This option allows you to set the threshold when the CDR records reach the percentage of system capacity.
<b>Hide Last Three Digits of Callee</b>	For some privacy reason, the company cannot record the callee number for the employee's call. When enable this option, the last three digits of callee in CDR will show xxx.

Table 11. CDR setting description

**Call Detailed Record**

CDR Status	Used: 0 records, Available: 10000 records
Maximum CDR for System	<input type="text" value="10000"/>
Send CDR via E-mail	<input type="button" value="NO"/> ▾
Send CDR via E-mail Period	Day ▾
Send CDR via E-mail Time	00:00 ▾
Delete CDR after Send the E-mail	<input type="button" value="NO"/> ▾
E-mail	<input type="text"/>
Send CDR immediately when the CDR Exceed the Maximum value	<input type="button" value="NO"/> ▾ <input type="text" value="70"/> ▾ %
Hide the Last Three Digits of Callee	<input type="button" value="NO"/> ▾

Figure 16. System setting – Call Detailed Record

➤ **Call Forward**

IPX-600 can enable/disable some call forwarding functions for the extension IP Phones by dialing some digits on the extension IP Phone. First off-hook the IP Phone, after hearing the dial tone, presses the specific digits, and then presses a '#' digit. Notice that the IP Phone could also have some call forwarding settings on its own menu configurations, both of IP Phone's and IPX-600's call forwarding could work independently.

Call Forward		
Call Forward Immediate Enable		*1
Call Forward Immediate Disable		*2
Call Forward on Busy Enable		*3
Call Forward on Busy Disable		*4
Call Forward on No Answer Enable		*5
Call Forward on No Answer Disable		*6
Call Pickup Number		*7

Figure 17. System setting – Call Forward

**Parameter description:**

Field	Description
<b>Call Forward Immediate Enable</b>	Enable the call forward immediate function of each IP Phone by pressing the specific digits on the IP Phone followed by the extension number to be forwarded, and then press a '#' digit. (This procedure must be done when the IP Phone is off-hooked and heard the dial tone). You can also enable this function through the menu configuration of the IP Phone device. The default value for this function is *1.
<b>Call Forward Immediate Disable</b>	Disable the call forward immediate function of each IP Phone by pressing these specific digits on the IP Phone, and then press a '#' digit. (This procedure must be done when the IP Phone is off-hooked and heard the dial tone). You can also disable this function through the menu configuration of the IP Phone device. The default value for this function is *2.
<b>Call Forward on Busy Enable</b>	Enable the call forwarding on busy function of each IP Phone by pressing the specific digits on the IP Phone followed by the extension number to be forwarded, and then press a '#' digit. (This procedure must be done when the IP Phone is off-hooked and heard the dial tone). You can also enable this function through the menu configuration of the IP Phone device. The default value for this function is *3.
<b>Call Forward on</b>	Disable the call forward on busy function of each IP Phone by

<b>Busy Disable</b>	pressing these specific digits on the IP Phone, then press a '#' digit. (This procedure must be done when the IP Phone is off-hooked and heard the dial tone). You can also disable this function through the menu configuration of the IP Phone device. The default value for this function is *4.
<b>Call Forward on No Answer Enable</b>	Enable the call forward on no answer function of each IP Phone by pressing the specific digits on the IP Phone followed by the extension number to be forwarded, and then press a '#' digit. (This procedure must be done when the IP Phone is off-hooked and heard the dial tone). You can also enable this function through the menu configuration of the IP Phone device. The default value for this function is *5.
<b>Call Forward on No Answer Disable</b>	Disable the call forward on no answer function of each IP Phone by pressing these specific digits on the IP Phone, then press a '#' digit. (This procedure must be done when the IP Phone is off-hooked and heard the dial tone). You can also disable this function through the menu configuration of the IP Phone device. The default value for this function is *6.
<b>Call Pickup Number</b>	This is the digits for any IP Phone to press (after off-hooked) to pickup a call of the other ringing extension on the same pickup group. Remember to press a '#' digit after the specific digits. The default value for this function is *7.

Table 12. Call forward setting description

➤ Call Park

Parameter description:

Field	Description
<b>Call Park Number</b>	This is the digit(s) for any extension IP Phone to press during a call conversation to park this call, a following '#' digit must be pressed, then, a retrieve number ( <b>9900~9910</b> ) will be heard on the phone, . After you walk to another IP Phone, you can dial the retrieve number you just heard in the parked IP Phone to retrieve back the previous call conversation. The default value for this Call Park Number is <b>9</b> .
<b>Call Retrieve Number</b>	This is the retrieve number range the user will heard from the phone when parking a call.
<b>Parking Time</b>	This is the maximum allowed parking time for the parked call. The default value for this function is 30 seconds.

Table 13. Call Park setting description

Call Park	
Call Park Number	9
Call Retrieve Number	9900 ~ 9910
Parking Time	30 seconds

Figure 18. System setting – Call Park

➤ **Distinctive Ring**

IPX-600 will bring the ring name to the IP-Phone and the IP-Phone will ring according to the ring name in the SIP header.

Distinctive Ring	
Extra-Calling Ring Name	Bellcore-dr1
Intra-Calling Ring Name	Bellcore-dr2

Figure 19. System setting – Distinctive Ring

➤ **Proxy Server**

The Proxy Server page includes the following parts:

- IP-PBX Behind NAT

Parameter description:

Field	Description
<b>IP-PBX behind NAT</b>	If your IPX-600 is behind NAT, please select this value to Yes.
<b>Stun Enable</b>	You can enable or disable these Stun settings by clicking on the checkbox.
<b>Stun Server</b>	You can fill in the stun server FQDN or IP address in this field.
<b>Stun Port</b>	You can fill in the stun server port in this field. The default value is 3478.
<b>Stun Status</b>	If IPX-600 can connect to the stun server, this will show the green light.
<b>SIP Keep Alive Enable</b>	You can enable or disable this option by clicking on the checkbox. You will need to enable this only when the IPX-600 is put behind another NAT device.
<b>SIP Keep Alive Period</b>	If you enable the keep alive, you can fill in the period in this field. The IPX-600 will periodically send out a small SIP message to keep the signal path between IPX-600 and the Proxy Server to prevent another NAT device from disconnecting this path.

Table 14. Behind NAT setting description

When you complete the configurations, you can press **Apply** to save all the settings. The system will restart to take the new settings effect.

■ Register Expire

Parameter description:

Field	Description
<b>Register Expire Period</b>	You can fill in the register expire period in this field. The IPX-600 will periodically re-register to the Proxy Server.

Table 15. Expire setting description

## Proxy Server

The IPX-600 works as a SIP proxy server for the other SIP devices, any SIP devices can register to IPX-600 to the WAN IP or LAN IP addresses. The IPX-600 can also register to other IPX-600 or other SIP Proxy server on this setting. The system can allow up to 8 registrations to other proxies.

Parameter description:

Field	Description
<b>Reg</b>	This field displays the registration status of the Proxy Server, green light means registered successfully.
<b>Name</b>	This is the name of this registration. And this name will be used in the <b>Call Route</b> settings.
<b>User Name</b>	The user name of this registration item.
<b>Password</b>	The password of this registration item.
<b>Auth. ID</b>	The authentication ID of this registration item.
<b>Proxy IP</b>	The IP address of the registered SIP proxy server.
<b>Proxy Port</b>	The port number of the registered SIP proxy server.
<b>Outbound Proxy</b>	If IPX-600 is behind the NAT, you should enable this option. This will show the IP address and port of the registered SIP outbound proxy.
<b>DID (Direct Inward Dialing)</b>	Any calls originating from the registered ITSP to IPX-600 will go into the auto-attendant or direct to the selected user or hunting group.
<b>Action</b>	You can modify the existing entry by clicking <b>Edit</b> button.

Table 16. Proxy server setting description

After **Delete/Add/Edit** of any items, you need to press the **Apply** button to save the configurations to the system. And all the settings will work immediately after pressing the **Apply** button. Do not need to restart the system to let this settings work.

For some ITSP, you cannot send the **User Number** to make the off net call. You can see the **Caller ID Delivery** when you **Add/Edit** proxy server entry. In this case, you need to select **Anonymous** as the **Caller ID Delivery**.

If you delete the **Proxy Server** item, the **Call Route** items associating with the **Proxy Server** will be deleted at the same time. IPX-600 will prompt a message box to allow you to confirm the deleting.

Figure 20. Proxy server page of IPX-600

## Gateway

IPX-600 can make the off-net call either via the ITSP Proxy or the FXO gateway. Before you can make the successful call, you have to add the **Gateway** entry or the **Proxy Server** entry and set the proper **Call Route**. In this section, we'll describe how to add a FXO gateway entry.

By clicking **Add** button, you'll see the Add Gateway page. Fill in the **Name**, **Gateway IP**, **Gateway Port**, **Number of Analog Ports** (Physical FXO Ports) and press **Apply**. This **Name** will be used in the **Call Route**, and it must be a unique for each Gateway.

If the IPX-600 is behind NAT, we recommend you to connect the FXO gateway to the WAN side of the IP-PBX. If the IPX-600 has the public IP address, we recommend you to connect the FXO gateway to the LAN side of the IP-PBX.

Entry Attributes	Values
Name	FXO-1
Gateway IP	192.168.0.30
Gateway Port	5060 (1~65535)
Number of Analog Ports	4
Gateway Location	LAN

Figure 21. Add gateway page of IPX-600

Back to the **Gateway** page, you can see the new entry, and press **Apply** to save the settings to the flash. If you delete the **Gateway** item, the **Call Route** items associating with the **Gateway** will be deleted at the same time. IPX-600 will prompt a message box to allow you to confirm the deleting.

Gateway					
<input type="checkbox"/>	Name	IP:Port	Number of Analog Ports	Gateway Location	Action
<input type="checkbox"/>	FXO-1	192.168.0.30:5060	4	LAN	<input type="button" value="Edit"/>

Figure 22. Gateway page with a new gateway

## Call Route

The extension of an IPX-600 can call out to other extensions of other IPX-600 or to other SIP proxy server or to other gateway device by setting the call route rules in this configuration page. For a called number, when the first few digits match the pattern of a call route, this call will be routed to a destination in this call route rule.

The **Call Route** settings make many IPX-600 to be able to group together to become a much larger system and make IPX-600 to bundle to other SIP service system and to call to PSTN through the gateway devices.

The **default route** entry always exists in the IPX-600 and the user cannot delete it. If the outgoing call cannot match any other call routes, it will match the **default route**.

Call Route (Dial Plan)					
	Pattern	Route via	Drop Digits	Prefix	Action
	default route	.	0		<input type="button" value="Edit"/>

Figure 23. Call route page of IPX-600

Parameter description:

Field	Description
<b>Name</b>	This is the name of this route entry
<b>Pattern</b>	This is the number that when the first few digits a call number matched will be routed specifically. For the call pattern, the 'x' is used to represent the wildcard for one digit, and '.' is used to represent the unlimited length of wildcards.
<b>Destination</b>	The destination of this call route item, this could be the <b>Proxy Server</b> or <b>Gateway</b> name.
<b>Drop Digits</b>	The first few digits of the dialed number will be removed after going out of the IPX-600 when the dialed number matches this pattern. This field is the length of the removed first few digits.
<b>Prefix</b>	This prefix number will be added to the dialed number after going out of the IPX-600 when the dialed number matches this pattern.

Table 17. Call route setting description

You can press **Add** button to add the new **Call Route** entry. By pressing **Add**, you can see the following page. The following steps will guide you how to setup a **Call Route** entry.

1. Fill the **9.** in the **Pattern** field, any call begin with digit 9 will route to this entry.
2. Then choose the existing **Proxy Server Name** from the dropdown combo box, or select the existing **FXO Gateway** from the combo box.
3. Fill in 1 in **Drop Digits** field.
4. We don't want to add any prefix to the outgoing number, so leave **Prefix** field empty.
5. Press **Apply** to go back the main page.

After **Delete/Add/Edit** of any items, you need to press the **Apply** button to save the configurations to the system. And all the settings will work immediately after pressing the **Apply** button.

Add Call Route (Dial Plan)	
Route Attributes	Values
Name	FXO-Route
Pattern	9.
Route via	<input type="radio"/> Proxy Server <input checked="" type="radio"/> Gateway FXO-1
Drop Digits	1
Prefix	
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Figure 24. Add call route page

## Call Out Block List

By dialing **9991**, you can record your customized **Block List** announcement. You can change this number by typing the new number and press **Apply**.

If you want to block some certain outgoing calls, you can add the block number here. For example, if you want to block any number that starts with 0204, you can add the block pattern **0204**. This setting will block the number 0204x/0204xx/0204xxx etc, but it cannot block 0204. The **Name** must be unique for each **Block List** entry.

Call Out Block List			
Block List Recording Number	9991		
<input type="checkbox"/>	Name	Block Pattern	Action
<input type="checkbox"/>	sex	0204.	<input type="button" value="Edit"/>
<input type="button" value="Delete"/> <input type="button" value="Add"/> <input type="button" value="Apply"/>			

Figure 25. Block list page of IPX-600



## Users Management

To let the IP-Phone register to IPX-600, you need to set the user accounts of all the IP-Phones to be installed in the **User Mgmt.** page.

By clicking the **IP PBX** link, the submenu will expand. Then click **User Mgmt.**, you can see four default users shown in the web page.

User Management													
<input checked="" type="checkbox"/> DHCP Only for IP Phones: Total: 4 Users, Registered: 0 Users.													
Index		Call Status	Disp. Name	Number	Password	Call Group	Pickup Group	Hunt Group	Call Type	IP:Port	APS	VMWI (new/old)	Action
001	<input type="checkbox"/>		100	100	100	1	1	-	-	-	N	0/0	Edit
002	<input type="checkbox"/>		101	101	101	1	1	-	-	-	N	0/0	Edit
003	<input type="checkbox"/>		102	102	102	1	1	-	-	-	N	0/0	Edit
004	<input type="checkbox"/>		103	103	103	1	1	-	-	-	N	0/0	Edit
							1						
<input type="button" value="Delete"/> <input type="button" value="Apply"/> <input type="button" value="Add User"/> <input type="button" value="Batch Add"/>													

Figure 26. User Management page of IPX-600

Some items/checks must be explained below:

### 1. DHCP Only for IP Phones

If this check box is checked, the DHCP server in this IPX-600 will only provide IP address to IP Phones in this user management page, the PC in the same network will not be able to get any IP address from IPX-600. In this way, as depicted in **Figure 27**, the voice packets from IP Phones will go through IPX-600 and data packets from Notebook/PC will go through other NAT/Router. The default value for this field is **checked**.

If you want to use the IPX-600 as both IP PBX and NAT/Router for the office, you need to uncheck **DHCP Only for IP Phones** checkbox. The IPX-600 will assign IP address to IP Phones and Notebook/PC in the office network. **Figure 28** depicts this usage. But this kind of usage is not recommended.



Figure 27. The installation environment of IPX-600  
(IPX-600 used as an IP PBX only)



Figure 28. IPX-600 used as both IP PBX and NAT/Router

2. **Index:** The sequence number in this list of the users (IP Phones) accounts.
3. : Check this box for the items that wanted to be deleted together.
4. **Call Status:** This field displays the call status of the IP Phone, red light means unregistered, green light means registered successfully, and yellow light means registered and on-call.
5. **Disp. Name:** The display name of the IP Phone account. Max allowed length is 32.
6. **Number:** The user number of the IP Phone account. Max allowed length is 64.
7. **Password:** The password of the IP Phone account. The allowed characters for the password are all digits. Max allowed length is 64. This is also the password for accessing the voicemail records for this account.
8. **Call Group:** The call groups this IP Phone belongs to. An IP Phone can belong to multiple call groups. The purpose of assigning IP Phones to some call groups is for the pickup usage as explained in the next item below.
9. **Pickup Group:** An IP Phone can have multiple pickup groups. Any extension IP Phone can only pickup the call of another ringing extension when the ringing extension is in one of the pickup groups of this IP Phone.
10. **Hunt Group:** An IP Phone can belong to a maximum of 5 hunt groups. This feature allows multiple users to be contacted by dialing into one configured hunt group number.

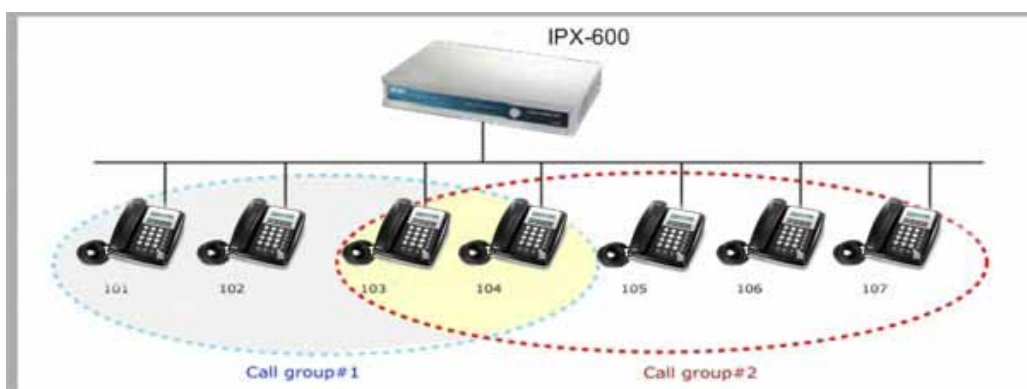


Figure 29. The relationship of call group and pickup group

As shown in **Figure 29**, IP Phone #103 belongs to call group #1 and #2, suppose that its pickup group is #1, and then it can only pickup the calls of #101, #102 and #104. And suppose that IP Phone #101 has pickup groups #1 and #2, and then it can pickup calls of every IP Phones in this figure.

11. **Call Type:** IPX-600 will automatically detect whether the IP Phone is registered from this office (displayed “local”) or from another office (displayed “remote”).
12. **IP: Port:** This field will show the IP address and port number of the registered IP Phone.
13. **APS:** The field when set to “YES” will enable the auto-provisioning (auto-installation) of this specific IP Phone, the IPX-600 will give the user accounts to the specific IP Phone (identified by the MAC address), and thus the IP Phones could be installed without any configuration.
14. **VMWI (new/old):** The number of new and old voice mails of this extension IP Phone.

The following sections will detail the possible installation methods (manually or automatically) of IPX-600 and IP Phones step by step:

### ➤ Install IP Phone Automatically

If you purchased a batch of IP-Phones with the IPX-600 at the same time, you can install all these IP Phones automatically without doing any configuration on each IP Phone, you just need to do some configurations on IPX-600 only.

The following steps will lead you to do this automatic installation step by step:

1. Click on **Batch Add** button, and the following page will appear.

Batch Add	
User Attributes	Values
First Number	104
Number of Users	6 users
Password	104 <input type="checkbox"/> Auto-increase
Call Group	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 <input type="checkbox"/> 13 <input type="checkbox"/> 14 <input type="checkbox"/> 15 <input type="checkbox"/> 16 <input type="checkbox"/> 17 <input type="checkbox"/> 18 <input type="checkbox"/> 19 <input type="checkbox"/> 20
Pickup Group	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 <input type="checkbox"/> 13 <input type="checkbox"/> 14 <input type="checkbox"/> 15 <input type="checkbox"/> 16 <input type="checkbox"/> 17 <input type="checkbox"/> 18 <input type="checkbox"/> 19 <input type="checkbox"/> 20
Call Forward Immediate	<input checked="" type="radio"/> Disable <input type="radio"/> Internal 100 <input type="radio"/> External
Call Forward on Busy	<input checked="" type="radio"/> Disable <input type="radio"/> Internal 100 <input type="radio"/> External
Call Forward on No Answer	<input checked="" type="radio"/> Disable <input type="radio"/> Internal 100 <input type="radio"/> External
MAC Address	00 : 00 : 00 : 00 : 00 : 00
APS	NO
Do Not Disturb	<input checked="" type="checkbox"/> Forward to VM
VM to E-mail	Disable E-mail <input type="checkbox"/> Delete VM after Send Attachment via E-mail
Goto VM after Ringing	60 seconds (10~60)
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Figure 30. Batch add accounts for IP Phone

- Fill in the **First Number**, **Number of Users** and **Password** fields. The system will automatically generate some user accounts with alphabetically increased user name and same password. If you want all the IP-Phones to have different password, just check the **Auto-increase** check box.
- The **Call Group** and **Pickup Group** check boxes could be multiply selected. You can set the IP Phones to belong to some **Call Groups**, and let the IP Phones to pick up the call of some **Pickup Groups**. These two settings are independent. Please refer to Figure3 for more detailed illustration.
- Do Not Disturb**: When the IPX-600 receives SIP response 486 from the IP Phone, it can forward the call to the voicemail or will reply the 486 to the user that will cause the IP-Phone busy.
- Enable/Disable the **Call Forward Immediate/Call Forward on Busy/Call Forward on No Answer** settings.
- Fill in the start MAC address of all the IP Phones in the **MAC Address** field. This field will only be used when the **DHCP Only for IP Phones** is enabled or **APS** field is enabled.
  - ✓ When **DHCP Only for IP Phones** is enabled, the DHCP service of IPX-600 will only give DHCP address to the device with this MAC address.
  - ✓ When **APS** field is enabled, IPX-600 will generate the auto configuration file to the IP Phone with this MAC address.
- Choose the **APS** to **Yes**; the IP-Phone will then be able to get the individual configuration

from the IPX-600 and work automatically. If the user is the local user, it will get the TFTP server IP address and auto configuration file via DHCP header. If the user is the remote user, you have to enter the WAN IP address of IPX-600 to the IP phone web page manually.

8. Fill in the e-mail server of the office; this is for voice mail to email service usage.
9. Click **Apply** to generate all the user accounts of all the IP Phones back to the main menu.
10. Make sure that **DHCP Only for IP Phones** is checked. This will ensure the IPX-600 only offer the IP address to the following users. This is the recommended setting when there is another DHCP server existed in the same network.
11. Click **Apply** to save the settings.
12. You can now install all the IP Phones in the network of the office, and the IP Phones will automatically find out the IPX-600 and be ready for call.

User Management													
<input type="checkbox"/> DHCP Only for IP Phones: Total: 10 Users, Registered: 0 Users.													
Index	Call Status	Disp. Name	Number	Password	Call Group	Pickup Group	Hunt Group	Call Type	IP:Port	APS	VMWI (new/old)	Action	
001	<input type="checkbox"/>		100	100	100	1	1	<a href="#">1</a>	-	-	N	0/0	Edit
002	<input type="checkbox"/>		101	101	101	1	1	<a href="#">1</a>	-	-	N	0/0	Edit
003	<input type="checkbox"/>		102	102	102	1	1	-	-	-	N	0/0	Edit
004	<input type="checkbox"/>		103	103	103	1	1	-	-	-	N	1/0	Edit
005	<input type="checkbox"/>		104	104	104	1	1	-	-	-	Y	0/0	Edit
006	<input type="checkbox"/>		105	105	105	1	1	-	-	-	Y	0/0	Edit
007	<input type="checkbox"/>		106	106	106	1	1	-	-	-	Y	0/0	Edit
008	<input type="checkbox"/>		107	107	107	1	1	-	-	-	Y	0/0	Edit
009	<input type="checkbox"/>		108	108	108	1	1	-	-	-	Y	0/0	Edit
010	<input type="checkbox"/>		109	109	109	1	1	-	-	-	Y	0/0	Edit

1

Figure 31. User Management page with new accounts for IP Phone

### ➤ Install IP Phone Manually

Other than the automatic installation of IP Phones, you could also install IP Phone manually. The manual installation steps for IP Phone and IPX-600 are detailed in the followings:

#### IP-Phone settings:

On the IP Phone, you need to at least set the user account and proxy server address to let the IP Phone register to the IPX-600 manually. Suppose that your IP-Phone is with number/password as 101/101, and then just fill in this account into the IP Phone. The default LAN port IP address of IPX-600 is 192.168.0.1, so, just key in this IP address as the proxy server address field in the IP Phone. The IP-Phone network type is better set to be DHCP type.

### IPX-600 settings:

On the IPX-600, you need to add this user account to allow the IP Phone to register into it. By clicking the **Edit** button on the 001 row, the following page will pop-up. The MAC address field is needed if the IP Phone wants to get IP address from IPX-600 by DHCP.

#### ➤ IP Phone Registration and Call Status

After some IP Phones installed, whether automatically or manually, the registration status of all the IP Phones are displayed in the **User Mgmt.** page as shown in the figure below. If the IP Phone is registered to the IPX-600 successfully, the **Call Status** field of that IP Phone will be green light. Red light means unregistered and yellow light means registered on on-call.

User Management													
<input type="checkbox"/> DHCP Only for IP Phones: Total: 10 Users, Registered: 1 Users.													
Index		Call Status	Disp. Name	Number	Password	Call Group	Pickup Group	Hunt Group	Call Type	IP:Port	APS	VMWI (new/old)	Action
001	<input type="checkbox"/>		100	100	100	1	1	<a href="#">1</a>	-	-	N	0/0	Edit
002	<input type="checkbox"/>		101	101	101	1	1	<a href="#">1</a>	-	-	N	0/0	Edit
003	<input type="checkbox"/>		102	102	102	1	1	-	Local	192.168.0.21:5060	N	0/0	Edit
004	<input type="checkbox"/>		103	103	103	1	1	-	-	-	N	1/0	Edit
005	<input type="checkbox"/>		104	104	104	1	1	-	-	-	Y	0/0	Edit
006	<input type="checkbox"/>		105	105	105	1	1	-	-	-	Y	0/0	Edit
007	<input type="checkbox"/>		106	106	106	1	1	-	-	-	Y	0/0	Edit
008	<input type="checkbox"/>		107	107	107	1	1	-	-	-	Y	0/0	Edit
009	<input type="checkbox"/>		108	108	108	1	1	-	-	-	Y	0/0	Edit
010	<input type="checkbox"/>		109	109	109	1	1	-	-	-	Y	0/0	Edit

1

Delete Apply Add User Batch Add

Figure 32. User Management page with Phone registered

#### ➤ Two-Level Management

IPX-600 supports two levels management – administrator and user. The administrator can configure everything in the IP-PBX, while the user can only configure his setting or view his status. For each legal user, he can login the IPX-600 with the registered number and password. The following page shows the menu structure when user 101 has login into the IPX-600 successfully.





Figure 33. General user log in page

## Call Status

The **Call Status** page will show all the users' call status in this page. When the operator wants to transfer the call, he can know each user's call status in this page. Red light means the user is unregistered. Green light means the user has registered. Yellow light means the user has registered and on the call.

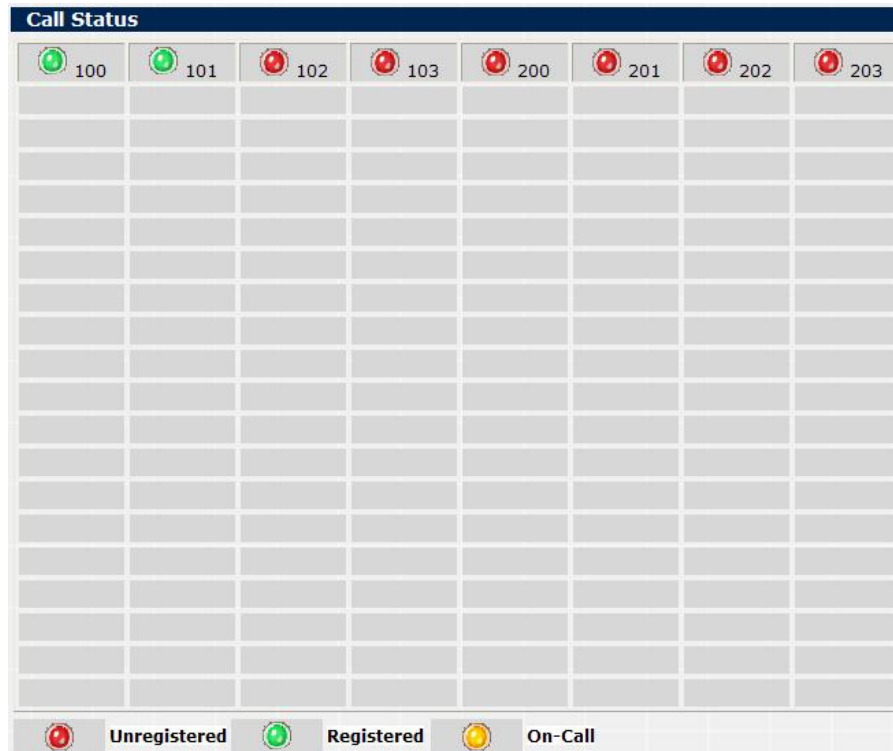


Figure 34. Call status page of IPX-600

## Hunt Group

This feature allows multiple users to be ringed by dialing into one configured hunt group number. Any call to the hunt group number will be forwarded to all the users configured in that number based on the mode of the hunt group. Hunt Group can have three modes, **Round Robin**, **Parallel** and **Random**. All hunt group members will be ringed one by one in **Round Robin** mode. For example, if Sale's Group contains members 101, 102 and 103, the first incoming call will ring 101, then 102, then 103. The

second call will ring 102, then 103, then 101. All the users will be ringed in the same time in **Parallel** mode. IPX-600 will ring the members randomly in **Random** mode.

By pressing **Add** button, you can see the **Add Hunt Group** page.

Add Hunt Group	
Group Attributes	Action
Name	FXO-1
Number	2000
Hunt Mode	Round Robin
Hunting Time	30 seconds (30~180)
#Members	<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 2px;">           102 103 200 201 202 203         </div> <div style="border: 1px solid black; padding: 2px;">           100 101         </div> </div>
Goto VM after Hunting Time	100
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Figure 35. Add hunt group page

1. Fill the hunt group name in the **Name** field. The name should be unique for each hunting group.
2. Give a hunt group number that is not used by any other users, and fill this number in **Number** field.
3. Select the **Hunt Mode** from the combo box.
4. Fill in the **Hunting Time**. For the **Round Robin** mode, the system will ring each member for 7 seconds and pause for 2 seconds. The minimal hunting time cannot be less than #members\*9 seconds. In the **Random** mode, it's similar with the Round Robin mode. If you set the hunting time to 30 seconds, it will ring 30/ (7+2) members in each incoming call. In the **Parallel** mode, the system will ring the group members 10 seconds and pause for 5 seconds periodically. I.e. if you set the hunting time to 30 seconds, it will ring the hunting group 30/ (10+5) times.
5. Select the group members from the left box to the right box.
6. If no one will answer the call after the hunting time, the system will go to one of the member's voicemail. You need to choose one member from **Go to VM after Hunting Time** combo box.
7. Press **Apply** to go back the main page.

Hunt Group					
■	Group Name	Number	Hunt Mode	#Members	Action
<input type="checkbox"/>	FXO-1	2000	Round Robin	100,101	<input type="button" value="Edit"/>
<input type="button" value="Delete"/> <input type="button" value="Add"/> <input type="button" value="Apply"/>					
1. Each hunt group can have a maximum of 20 users. 2. A user can belong to a maximum of 5 hunt groups.					

Figure 36. Hunt group page with new group



## Call / Pickup Group

In **User Mgmt.**, each user can belong to different Call/Pickup Group. This page facilitate you to view the users of the certain group.

Figure 37. Call / Pickup Group page of IPX-600

## Call Detailed Record

The CDR (Call Detailed Record) of IPX-600 can save and display some information of all the calls, successful or failed etc.

Call Detailed Record							
Caller	Callee	Start Time	Answer Time	End Time	Duration (secs)	Bill (secs)	Call Action
200	101	2000-01-01 08:39:40	2000-01-01 08:39:41	2000-01-01 08:39:52	12	11	ANSWER
100	200	2000-01-01 08:39:30	2000-01-01 08:39:31	2000-01-01 08:39:36	6	5	ANSWER
100	101	2000-01-01 08:39:13	2000-01-01 08:39:14	2000-01-01 08:39:25	12	11	ANSWER
1							

Figure 38. CDR page of IPX-600

Parameter description:

Field	Description
<b>Caller</b>	This is the calling party number
<b>Callee</b>	This is the called party number
<b>Start Time</b>	The time when the callee answered the call, if the call is not answered, this field will be empty.
<b>Answer Time</b>	The time when the callee answered the call, if the call is not answered, this field will be empty.
<b>End Time</b>	The time when any party hangs up the call
<b>Total Duration</b>	The total duration of the call from Start time to end time
<b>Bill</b>	the total duration of the call from Answer time to end time
<b>Call Action</b>	Shows the result of the call - answered or busy

Table 18. CDR items description

## Auto Attendant

IPX-600 provides the flexible Auto Attendant architectures. The system will play the different message according to the **Service Time** configurations. If someone dials into IPX-600 in the business hours, it will play the welcome message that will say that please press 0 for native language or press 9 for the operator. If the call is coming during the off-duty period, it will play the off-duty message that will say that it's the after business hour and please dial the extension number directly. The digit 0 or 9 is

called **Service Digit**, the user can record the customized message that prompt the different digit ranging from 0~9 for different services.

This page is divided into three parts. The first part provides two numbers for auto attendant and auto attendant recording.

The second part is the **Auto Attendant Message List** that allows the user to record 4 customized messages. The system provides default English and Chinese welcome and off-duty messages. User can upload their own messages to replace the default messages.

The third part is the **Auto Attendant Service Time List**. User can add the service time range, and select the associating message. System allows the user to add 6 service time entries.

Figure 39. Auto attendant page of IPX-600

➤ **Auto Attendant Recording**

Parameter description:

Field	Description
<b>Auto Attendant Number</b>	By dialing <b>9997</b> from any extension IP Phone, you can listen to your customized auto attendant announcement. This number 9997 could be changed.
<b>Auto Attendant Recording Number</b>	By dialing <b>9990</b> from any extension IP Phone, user can record the customized auto attendant announcement. The IVR system will direct you to record every sentences needed for the auto-attendant announcements, that include welcome message, off-duty message in both English and native languages. This number 9990 could be changed.

Table 19. Auto attendant setting description

➤ **Auto Attendant Message List**

IPX-600 provides 6 messages that can be played at different service times. There are two default messages called **Welcome** and **Off-Duty** messages and 4 Custom messages. By clicking the **Edit** button in the **Welcome Message**, the following page will be shown. Before you can use the upload function, you must make sure the SD card is mounted. The maximum size of the voice file size is 200 Kbytes. The 200 Kbytes will allow you to upload 204.8 seconds G.729 voice file and 172 seconds GSM file.

Auto Attendant Message			
Message Type		Welcome Message	
Message Type	G.711 (.gsm)	G.729 (.g729)	G.723 (.g723)
English Welcome	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑
Native Welcome	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑

<input type="checkbox"/>	Service Digit	Extension	Action
<input type="checkbox"/>	0	English Language Service	
<input type="checkbox"/>	9	100	<input type="button" value="Edit"/>

Figure 40. Auto attendant edit page

For each message, the system has reserved service digit 0 for the native language service and the user can add 5 digits for different services. For Welcome message, it always plays at the working hour. The system has reserved digit 9 for operator service and the default operator’s extension is 100. You can upload the customized English and Native Welcome message by browsing the .gsm or .g729 file in the local storage and upload to the system. Once you have done all the changes, press **Apply** button to take effect.

➤ **Auto Attendant Service Time List**

You can set six Service Time List entries. By clicking **Add** button, you can see the following page. The following settings show the working hour is from 9:00~18:30 Monday to Friday. Any call coming in this period will play the **Welcome Message**. Press **Apply** to back to the previous screen and press **Apply** again.

Edit Auto Attendant Service Time	
Attributes	Values
Date	<input type="text"/> / <input type="text"/> To <input type="text"/> / <input type="text"/>
Weekdays	Mon <input type="text"/> To Fri <input type="text"/>
Times	09:00 <input type="text"/> To 18:30 <input type="text"/>
Message Type	Welcome Message <input type="text"/>

Figure 41. Edit Auto attendant service time page

Auto Attendant Service Time List					
■	Times	Weekdays	Date	Message	Action
<input type="checkbox"/>	09:00-18:30	Mon-Fri	-	Welcome Message	<a href="#">Edit</a>
<a href="#">Delete</a> <a href="#">Add</a> <a href="#">Up</a> <a href="#">Down</a>					

Figure 42. Auto attendant service time page with new time

For example, your company will be closed during Dec 25 ~ Dec 31 every year and you want to play the **Custom-1** message. After you have added this entry and press **Apply** button, you can see the following page.

Auto Attendant Service Time List					
■	Times	Weekdays	Date	Message	Action
<input type="checkbox"/>	09:00-18:30	Mon-Fri	-	Welcome Message	<a href="#">Edit</a>
<input type="checkbox"/>	-	-	Dec/25-Dec/31	Custom-1 Message	<a href="#">Edit</a>
<a href="#">Delete</a> <a href="#">Add</a> <a href="#">Up</a> <a href="#">Down</a>					

Figure 43. Add another Auto attendant service time page

Unfortunately you can never the **Custom-1** message during Dec 25 ~ Dec 31. The system will always match the first entry of the service time and play the **Welcome Message**, since the first entry has the highest priority when matching the rule. So you have to select the second entry and press **“Up”** button to move this entry to the first priority.

Auto Attendant Service Time List					
■	Times	Weekdays	Date	Message	Action
<input type="checkbox"/>	09:00-18:30	Mon-Fri	-	Welcome Message	<a href="#">Edit</a>
<input checked="" type="checkbox"/>	-	-	Dec/25-Dec/31	Custom-1 Message	<a href="#">Edit</a>
<a href="#">Delete</a> <a href="#">Add</a> <a href="#">Up</a> <a href="#">Down</a>					

Figure 44. Select Custom-1 Auto attendant service time page

Then you can see the following page. Press **Apply** to save the settings to the flash.

■	Times	Weekdays	Date	Message	Action
<input checked="" type="checkbox"/>	-	-	Dec/25-Dec/31	Custom-1 Message	<a href="#">Edit</a>
<input type="checkbox"/>	09:00-18:30	Mon-Fri	-	Welcome Message	<a href="#">Edit</a>
<a href="#">Delete</a> <a href="#">Add</a> <a href="#">Up</a> <a href="#">Down</a>					

Figure 45. Move up Custom-1 Auto attendant service time page

## Upload Voice File

You can upload **English/Native Invalid Message**, **English/Native Block List Message**, **Call Queuing Message**, and **Music on Hold File** via this page. Before you can use the upload function, you must make sure the SD card is mounted. The maximum size of the voice file size is 200 Kbytes. The 200 Kbytes will allow you to upload 204.8 seconds G.729 voice file and 172 seconds GSM file.

If the IPX-600 **Remote/PBX Codec** is G.711ulaw or G.711alaw, you have to upload the .gsm file to the system. If the codec is G.729, you have to upload the file with .g729 format. We'll show the details in [Appendix F](#).

Upload Voice File			
Message Type	G.711 (.gsm)	G.729 (.g729)	G.723 (.g723)
English Invalid	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑
Native Invalid	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑
English Block List	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑
Native Block List	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑
Call Queuing	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑
Music On Hold	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑	<input type="text"/> Browse.. ↑

1. You can do the upload voice file function only when the USB disk is mounted.  
2. The maximum size of the upload voice file size is 200 kbytes.

Figure 46. Upload voice file page of IPX-600

## NAT Advanced

In the following sections, all the NAT Advanced related functions will be introduced.

### Access Control List

With **Access Control List**, you can **forbid/block** a certain Notebook/PC from accessing certain internet service. There are 8 different access control lists for user's configuration. If you want to generate the ACL log, you have to check the **Generate ACL Log** box on.

The following setting gives the example of blocking a certain Notebook/PC with IP address 192.168.0.250 from doing the FTP access (port 21) to the internet.

Access Control List				
<input type="checkbox"/> Generate ACL Log				
Priority	IP	Type	Port	Enable
1	192.168.0.250	TCP	21	<input checked="" type="checkbox"/>
2	192.168.0.0	TCP	0	<input type="checkbox"/>
3	192.168.0.0	TCP	0	<input type="checkbox"/>
4	192.168.0.0	TCP	0	<input type="checkbox"/>
5	192.168.0.0	TCP	0	<input type="checkbox"/>
6	192.168.0.0	TCP	0	<input type="checkbox"/>
7	192.168.0.0	TCP	0	<input type="checkbox"/>
8	192.168.0.0	TCP	0	<input type="checkbox"/>

Apply Cancel

Figure 47. Access control list page of IPX-600



## Virtual Server

**Virtual Server** can be used to set up public server services on your network. When users from the Internet make certain service requests on your network, the IPX-600 can forward those requests to computers that really have the service. For example, if you set the port number 80 (HTTP) to be forwarded to IP Address 192.168.0.2, then all HTTP requests from internet will be forwarded to 192.168.0.2.

You may use this function to establish a Web server or FTP server service through IPX-600. Be sure that you enter a valid IP Address. (You may need to establish a static IP address with your ISP in order to properly run an Internet server.) The packets will simply be forwarded through the IPX-600.

Enter the range of port numbers and the protocol type (UPD or TCP) that will be used by the server service. Then enter the IP Address and port range of the real local server that will handle the service requests.

There are eight virtual server entries for user configuration.

Click the Apply button to save the settings.

Virtual Server				
WAN Port Range	Server IP Address	Server Port Range	Protocol	Enable
20 ~ 21	192.168.0.0	20 ~ 21	TCP	<input checked="" type="checkbox"/>
0 ~ 0	192.168.0.0	0 ~ 0	TCP	<input type="checkbox"/>
0 ~ 0	192.168.0.0	0 ~ 0	TCP	<input type="checkbox"/>
0 ~ 0	192.168.0.0	0 ~ 0	TCP	<input type="checkbox"/>
0 ~ 0	192.168.0.0	0 ~ 0	TCP	<input type="checkbox"/>
0 ~ 0	192.168.0.0	0 ~ 0	TCP	<input type="checkbox"/>
0 ~ 0	192.168.0.0	0 ~ 0	TCP	<input type="checkbox"/>
0 ~ 0	192.168.0.0	0 ~ 0	TCP	<input type="checkbox"/>

Apply Cancel

• Virtual servers using single port number is accelerated by hardware at wirespeed.

Figure 48. Virtual Server page of IPX-600

## URL Filter

You can deny some Notebook/PC from accessing to some websites by listing them in this “URL Filter” list. For example, if you want to deny all the Notebook/PC with IP addresses from 192.168.0.2 to 192.168.0.254 to access the [www.msn.com](http://www.msn.com) website, you can do the following settings.

URL Filter		
URL String Pattern to be Blocked	Source IP Range	Enable
http://www.msn.com	192.168.0.2-192.168.0.254	<input checked="" type="checkbox"/>
	0.0.0.0-0.0.0.0	<input type="checkbox"/>
	0.0.0.0-0.0.0.0	<input type="checkbox"/>
	0.0.0.0-0.0.0.0	<input type="checkbox"/>
	0.0.0.0-0.0.0.0	<input type="checkbox"/>
	0.0.0.0-0.0.0.0	<input type="checkbox"/>
	0.0.0.0-0.0.0.0	<input type="checkbox"/>
	0.0.0.0-0.0.0.0	<input type="checkbox"/>

Apply Cancel

• Any web access traffic(ie. destined to any TCP port) is inspected by hardware at wirespeed.

Figure 49. URL filter page of IPX-600

## Static Route

You will need to configure “Static Route” function if there are multiple routers installed on your network. The “Static Route” function let the IPX-600 be able to direct some packets to go to correct interface (LAN or WAN) when the packets were with destination IP address listed in the “Static Route” list.



Figure 50. Topology of example

For example, if you have the following network hierarchy, you can configure the following settings in the routing table.

Static Route			
Route	Route Mask	Next Hop IP	Interface
192.168.2.0	255.255.255.0	192.168.1.100	LAN
192.168.3.0	255.255.255.0	192.168.0.100	WAN
0.0.0.0	255.255.255.255	0.0.0.0	-----
0.0.0.0	255.255.255.255	0.0.0.0	-----
0.0.0.0	255.255.255.255	0.0.0.0	-----

• Given 'Next Hop IP' must be in the same subnet as specified 'Interface' to be accepted.

Figure 51. Static Route setting example page

## Special Application

IPX-600 has a natural firewall that rejects any *unsolicited* data from traveling into a computer on the LAN network. Basically, if you didn't ask for the data, it isn't going to pass through the firewall. A **Special Application** is one that breaks this rule. For some applications, you can configure the IPX-600 to allow them to pass inside IPX-600 to a specific Notebook/PC by setting this “Special Application” list.

For a certain special application to pass through IPX-600, first, a trigger packet that has a destination port falling in the range between **Trigger Start Port** and **Trigger End Port** must be sent from a Notebook/PC in the LAN side out to the WAN side. Second, the packets of the special application from the internet must have the destination port falling in the **Incoming Port Range**. These packets then will be forwarded to the Notebook/PC that has sent the trigger packet.

Special Application						
Name	Incoming Type	Incoming Port Range	Trigger Type	Trigger Start Port	Trigger End Port	Enable
Quick Time 4	UDP	6970-6999	TCP	554	554	<input checked="" type="checkbox"/>
MSN Gaming Zor	TCP	28800-29000	TCP	6667	6667	<input checked="" type="checkbox"/>
ICQ	TCP	20000-20019,20020-20039	TCP	4000	4000	<input checked="" type="checkbox"/>
	TCP		TCP	0	0	<input type="checkbox"/>
	TCP		TCP	0	0	<input type="checkbox"/>
	TCP		TCP	0	0	<input type="checkbox"/>
	TCP		TCP	0	0	<input type="checkbox"/>
	TCP		TCP	0	0	<input type="checkbox"/>

Apply Cancel

Figure 52. Special application page of IPX-600

## DMZ Host

The **DMZ Host** setting can allow one local user to be exposed to the Internet with no firewall protection. When a local user wishes to use some special-purpose service, such as an Internet game or Video-conferencing, set the dedicated DMZ Port and click the **Apply** button.

DMZ Host	
DMZ Host IP Address:	192.168.0.2
<b>Apply</b>	<b>Cancel</b>

Figure 53. DMZ Host page of IPX-600

## DoS (Denial of Service) Protection

When you enable this function, it will block most of the Internet attacks. This option is enabled as default value.

DoS Protection	
DoS Protection	<input checked="" type="checkbox"/>
<b>Apply</b>	<b>Cancel</b>

Figure 54. DoS page of IPX-600

## Dynamic DNS

IPX-600 support dynamic DNS service. If the WAN IP address of IPX-600 is dynamic and public (PPPoE), you can use this service to let other Internet host to access IPX-600 by its dynamic domain name.



Figure 55. Dynamic DNS page of IPX-600

## Pass-through

IPX-600 provides the following pass through functions; you can let some specific types of packets to pass through IPX-600 without any modification of the packets. The types of packets that could be enabled to pass through are PPPoE, IPv6, IPX, NETBIOS and IP multicast. You can choose to enable some of these types to pass through by checking the Pass through page.

Figure 56. Pass-through page of IPX-600

## UPnP

Universal Plug and Play (UPnP) is designed to support zero-configuration, "invisible" networking, and automatic discovery for some devices installed inside the LAN network of IPX-600. The specific devices must have some UPnP application running to let this function work. Window XP can support UPnP function. MSN version above 6.0 can use UPnP to learn the NAT router's WAN IP and thus traverse the NAT seamlessly. To enable the UPnP function, just check on the box and press **Apply** to take effect.

Figure 57. UPnP page of IPX-600

## Ping Toolkit

You can use the **Ping Toolkit** to allow IPX-600 to ping another device in the LAN network or in the Internet to check if the network link between IPX-600 and the specific device are connected. The

results of the pinging will be displayed in this page. The following web page shows the example of pinging “www.google.com”.



Figure 58. Ping toolkit page of IPX-600

## Log

In this setting, you can decide which kind of events to be logged and to view these individually logged events.

There are five kinds of events that could be logged; they are system, ACL, URL filter, New NATP (newly opened port mapping) and PBX logs.

For example, if you want to log the system events, you need to check on this **System Log** check box and pressing **Apply** button. Latter on, you could then press the **View System Log** to see the logged events.

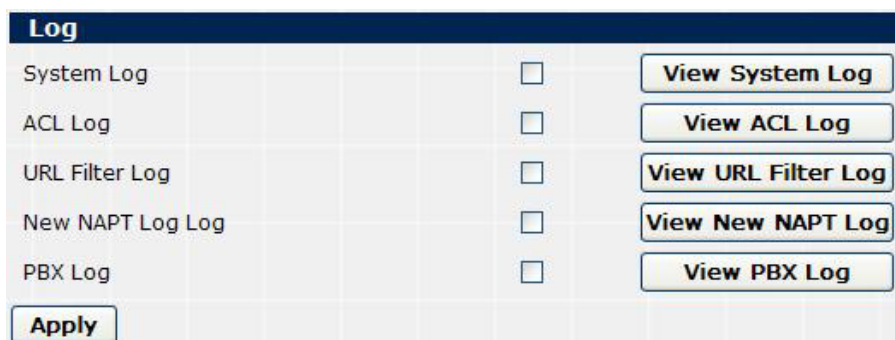


Figure 59. Log page of IPX-600

## Remote Management

Parameter description:

Field	Description
<b>Remote Management Port</b>	IPX-600 allows you to do the remote management via the web browser. You can change the remote management port by modifying this field. The default port number is 8080. If you want to disable remote management through web, you need to enter 0 in this field.
<b>Ping from WAN Side</b>	This feature is designed to prevent attacks through the Internet. When it is disabled, the IPX-600 will drop ICMP packets from the WAN side. The hacker cannot find the IPX-600 by pinging the WAN IP address. The default value of this field is enabled.

Table 20. Remote management setting description

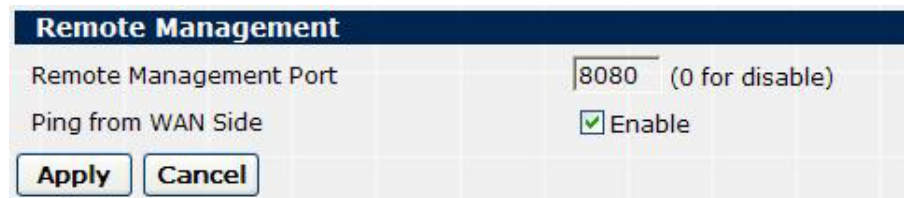


Figure 60. Remote management page of IPX-600

## Password

This setting allows you to change the web login password of the administrator account.

If you want to change the password, just click on **Password** page and type the new password. Press the **Apply** button when you have done the input.

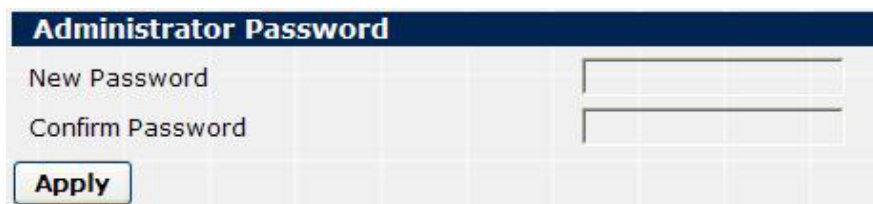


Figure 61. Password page of IPX-600

## Upgrade

By clicking on the **Upgrade** page, you can do the following functions.

Parameter description:

Field	Description
<b>Firmware Upgrade</b>	The firmware of IPX-600 could be upgraded if you have a newer firmware on your Notebook/PC. Just press the <b>Browse</b> button on this page, a small window will pop up that allows you to select the new firmware file in your PC. After the firmware file is selected, press the <b>Upgrade</b> button to do the firmware upgrade. A progress bar will pop up to display the upgrading status. The upgrade progress will take about 4~5 minutes. Please don't reboot the device during upgrade.
<b>Backup Configuration</b>	By pressing <b>Backup</b> button, you can save IPX-600's current configuration settings into a file in your PC. The saved filename is "config.dat".
<b>Restore Configuration</b>	The configuration of IPX-600 could be restored from the backup configuration file you stored previously with the file name of "config.dat". You can press the <b>Browse</b> button to select the backup configuration file name. Then, by pressing <b>Restore</b> button, the configuration will be restored to IPX-600. If the external SD card is inserted and works with IPX-600, the new settings will be restored to the flash and external SD card at the same time.
<b>Factory Default</b>	Press the <b>Factory Default</b> will restore the flash & external SD card settings to the factory default values.
<b>System Restart</b>	Press the <b>System Restart</b> will reboot the system.

Table 21. Upgrade setting description

The screenshot shows the following interface elements:

- Firmware Upgrade:** A text field labeled "Firmware File :" followed by a "Browse.." button and an "Upgrade" button.
- Backup Configuration:** A "Backup" button.
- Restore Configuration:** A text field labeled "Configuration File :" followed by a "Browse.." button and a "Restore" button.
- Factory Management:** A "Factory Default" button.
- System Restart:** A "System Restart" button.

Figure 62. Upgrade page of IPX-600

# Appendix A

## DHCP Server Function Notice

There are two web pages related to the DHCP Server options. One is **DHCP Server Status** in the **DHCP Server** page and the other is the **DHCP Only for IP Phones** in the **User Management** page.

This appendix will illustrate the different combinations and results.

### ■ **DHCP Server Status** : Enabled / DHCP Only for IP Phones : Checked

- The DHCP server in this IPX-600 will only provide IP address to IP Phones with MAC addresses listed in the user management page, the Notebook/PC in the same network will not be able to get any IP address from IPX-600. In this way, as depicted in **Figure 1**, the voice packets from IP Phones will go through IPX-600 and data packets from Notebook/PC will go through NAT/Router. This is the default setting.
- Under this situation, if the APS selection is checked, the IP Phone will also get the auto-configuration information (file name) from DHCP packets, and the IP Phone could be installed automatically.

### ■ **DHCP Server Status** : Disabled

- The DHCP Server will not offer IP addresses to any devices that were connected to the LAN network of the IPX-600.

### ■ **DHCP Server Status** : Enabled / DHCP Only for IP Phones : Unchecked

- The DHCP Server will offer IP addresses to any devices that were connected to the LAN network of the IPX-600. The devices could be IP Phones and/or Notebook/PC.

# Appendix B

## SD Card Usage Notice

We recommend you to plug the 512 Mbytes external SD card to IPX-600. There are two very important benefits of using the SD card:

1. The storage size of voicemail and CDR records is 10 times larger.
2. When under some terrible situation that the IPX-600 damaged, you can get a new IPX-600 in a fastest speed and insert the old SD card into it, the whole configurations of the old IPX-600 will be back, no need to worry about any re-configuration and storage lost.

This appendix will describe the SD card behavior in more details.

### ■ Fresh SD card

- When you plug a fresh SD card into IPX-600, IPX-600 will backup all current configurations to the SD card in the booting time.

### ■ Load Setting Sequence

- During system boot up, if the SD card is inserted and is not fresh, the system will load the settings from the SD card; these settings will then be saved into system flash memory after boot up. If there is no valid configuration in the SD card or the SD card is not plugged into the system, the system will load the configurations from the system flash memory instead.

### ■ Configuration Synchronization

- During the web page configuration, when the **Apply** button in each page is pressed, the new settings will be saved into the system flash memory and SD card simultaneously.

### ■ Factory Default

- When the **Factory Default** button in the management/upgrade page is pressed, the configurations in system flash memory and SD card will be cleared to factory default values.

### ■ Don't try to unplug the SD card at runtime

- IPX-600 does not support hot plug-and-unplug, so that please power off the machine before plug/unplug the SD card into socket. Don't unplug the SD card during system runtime.

### ■ Persistent Storage

- The CDR records and Voicemail when stored into the SD card, the storage could be permanent.
- The CDR records and Voicemail when stored into the SD card, the storage size could be much larger.

■ **LED**

- When the system boots up and mount the SD card successfully, the SD Card LED will be on. Since the system doesn't support hot plug-unplug, the LED won't be turned off.

# Appendix C

## Auto Attendant Announcement

IPX-600 provides the **Auto Attendant** function. When a registered IP Phone calls the **Auto Attendant Number (9997)** or other user dials into the number that is registered to other proxy server, the Auto Attendant announcement will be heard.

There are six default auto attendant messages as following:

1. Welcome message: Welcome to PLANET Technology, please dial the extension number or press 9 for operator, for native language service please press 0.
2. Busy message: Sorry, the extension number cannot be recognized, please check again or wait for operator.
3. Off-duty message: We are sorry we cannot take your call now, please dial the extension number, or press 0 for native language service.
4. Chinese welcome message.
5. Chinese invalid message.
6. Chinese after business hour message.

If you want to record your customized auto attendant messages, you can press **9990** to record your messages.




# Appendix D

## Upload Voice File Procedures

IPX-600 allows the user to upload customized IVR or Music on Hold files via web page. If the **Remote/PBX Codec** is G.711, you can upload the .gsm file to replace the default IVR. If the **Remote/PBX Codec** is G.729, you can upload .g729 file. The upload files will be placed at the SD Card, and the file size cannot exceed 200 Kbytes.

Many shareware or software can record the voice in .gsm format. We'll use WavePad to demonstrate the recording procedures. You can find the information of WavePad in <http://www.nch.com.au/wavepad/masters.html>.

The following steps demonstrate how to record a file using the WavePad and how to use the Planet G.729 encoder utility to convert the uncompress wave file to .g729 file.

**Step1:** Press the  button

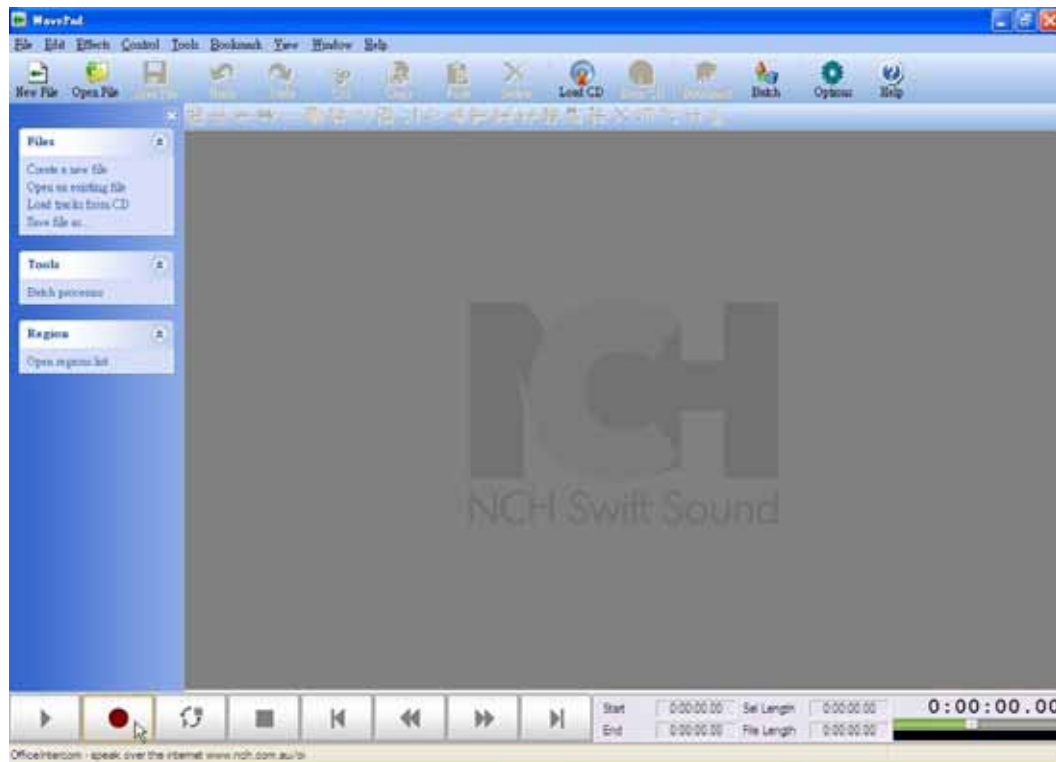


Figure 67. Main menu page of WavePad program

**Step2:** Press **OK** button

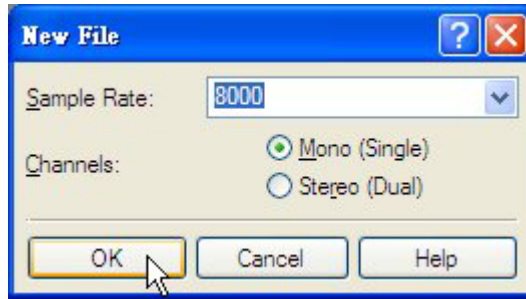



Figure 68. Sample rate setting page

**Step3:** Start to record the IVR till you press  button to stop recording.

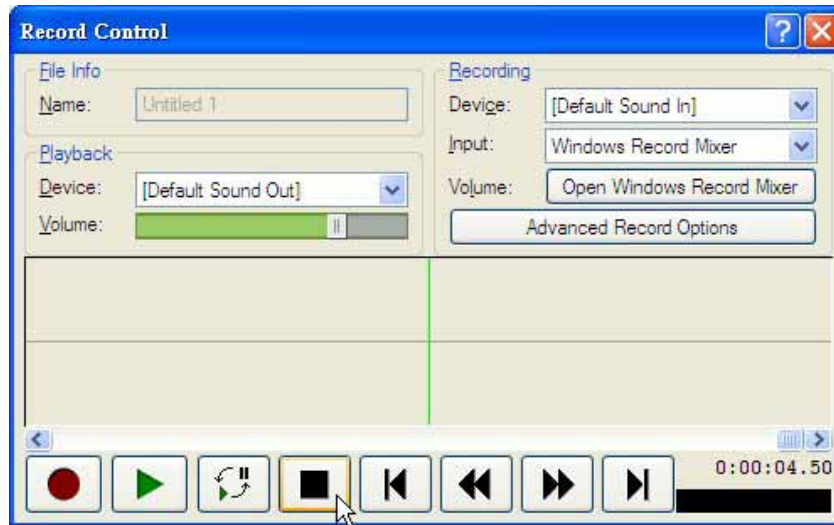



Figure 69. Record control page

**Step4:** Move the mouse to the upper-right corner of the window, and click the  the close the recording window.

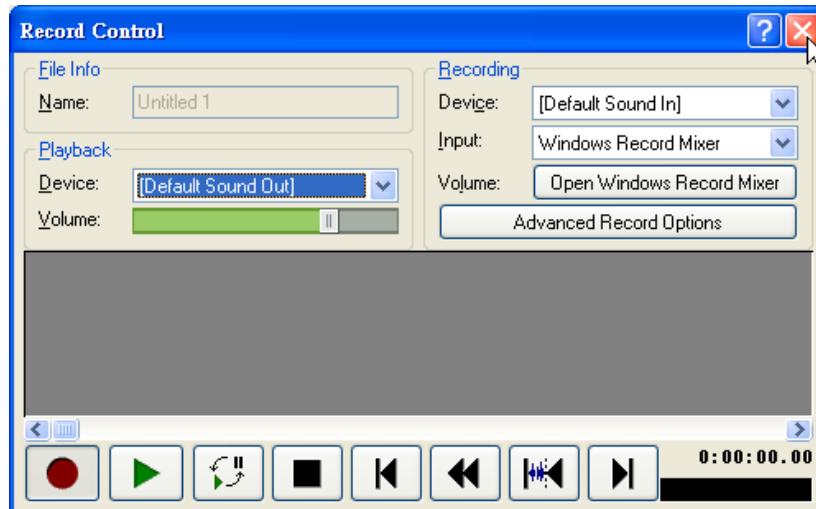


Figure 70. Record control page

**Step5:** Click on  to play the voice.



Figure 71. Play voice page

**Step6:** Move the mouse to **File** and select **Save File As...** menu to save the voice.



Figure 72. Go to save voice file page

**Step7:** Type in the filename, select the extension to .GSM, and press **“Save”** button to save the file.

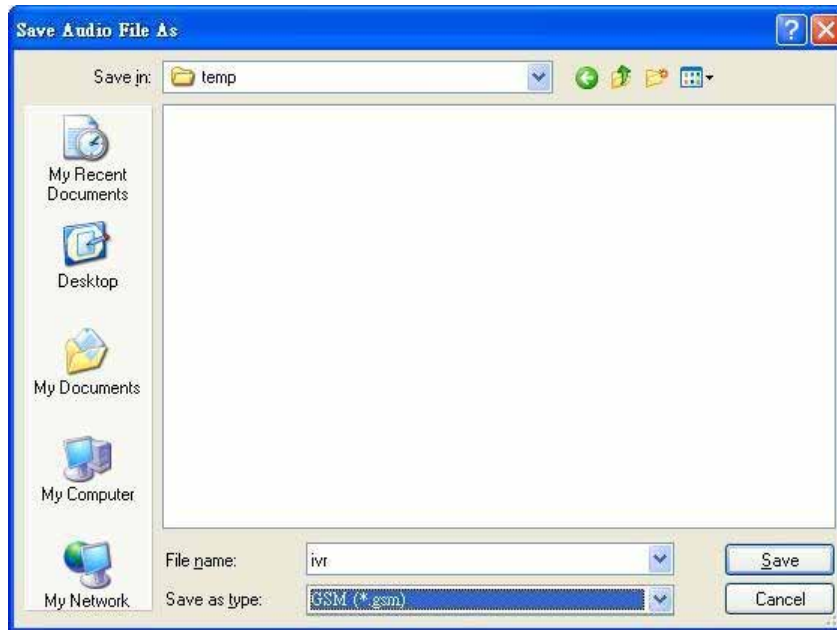


Figure 73. Save voice file page

**Step8:** Type in the filename, select the extension to .Wave, and press “**Save**” button to save the file.

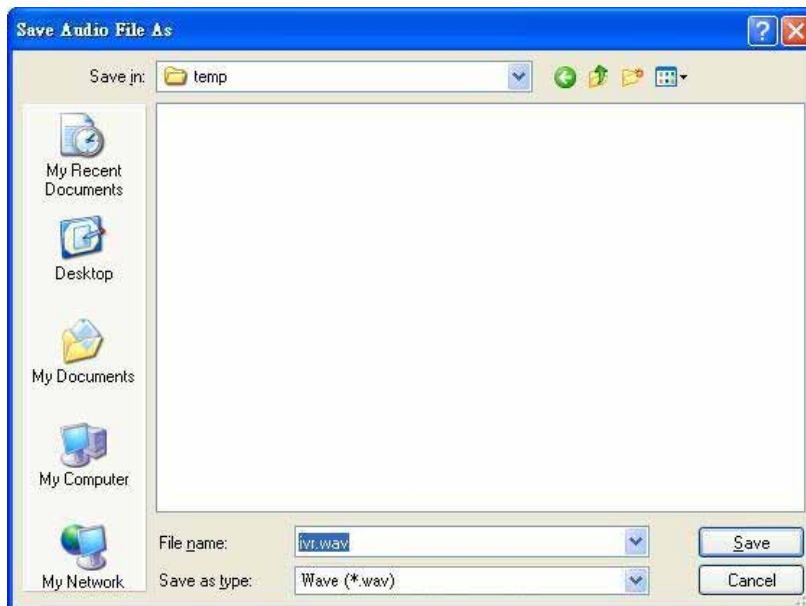


Figure 74. Save voice file page

**Step9:** Choose the 8 kHz, 16 bits, Mono, 15 kb/second, PCM, and press **OK** button to save the file.  
This will be the uncompress wave file format.

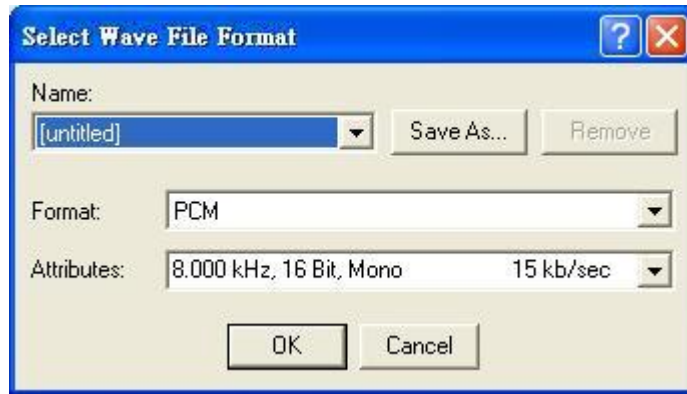


Figure 75. Wave file format setting page

**Step10:** Then you can use G.729 encoder to convert the uncompress wave file to .g729 file.

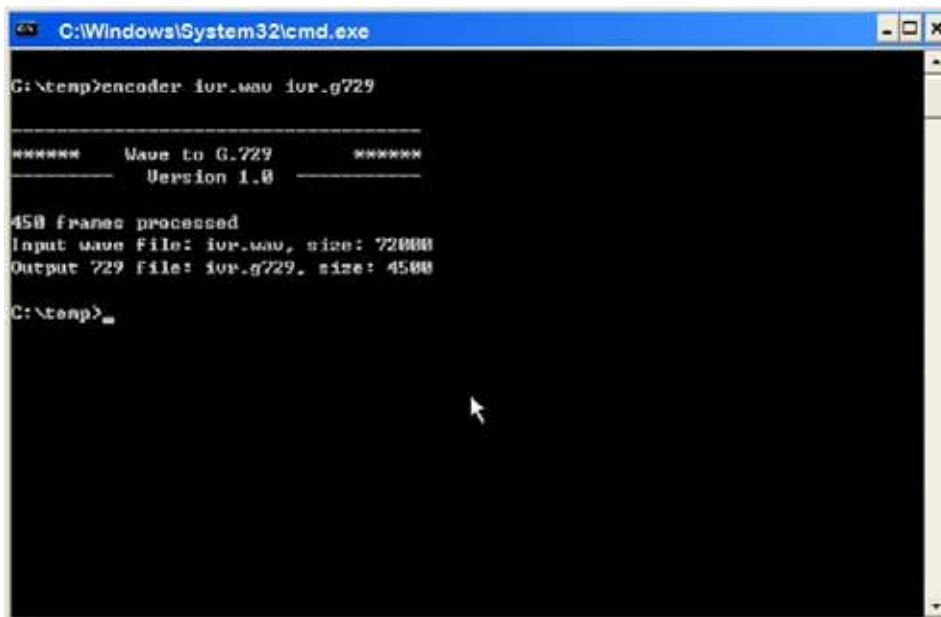


Figure 76. Convert page of G.729 encoder

# Appendix E

## How to make off-Net Calls (PSTN calls)

There are two ways to make the off-net calls (call to PSTN numbers). One is via other proxy server and the other is via the local FXO gateway.

For method one, the IPX-600 needs to register to a sip proxy server provided by a service provider, this could be configured in the **Proxy Server** page. The following web page is an example of setting IPX-600 to register to a proxy server “**fwd.pulver.com**”, and this service is named “**FWD**”.

The screenshot shows the configuration page for an IP-PBX. It is divided into three main sections:

- IP-PBX behind NAT:** Includes settings for NAT (set to NO), SIP Keep Alive (disabled, 20 seconds), Stun (disabled), and Stun Server/Port (set to 0).
- Register Expire:** Register Expire Period is set to 3600 seconds.
- Proxy Server:** A table with columns: Reg, Name, Number, Password, Auth. ID, Proxy IP, Proxy Port, Outbound Proxy, DID, and Action. One entry is shown for 'FWD' with number 288925, password XXXXXX, auth ID 288925, proxy IP fwd.pulver.com, and port 5060. The DID is IVR. There are buttons for Delete, Add, and Apply.

Figure 63. Proxy server registration example page

Since a IPX-600 could register to up to eight different proxy servers, so, there must be a way to direct a call to go to the correct proxy server you desired to use. This is done through the **Call Route** settings. For example, as depicted in the following web page of a call route setting, if you want to make the off-net call via “**FWD**” proxy server, you have to dial “**9**” followed by the PSTN phone number. The IPX-600 will direct this call to the “**FWD**” proxy server and drop digit 9 before sending the telephone number to the proxy server. The “**FWD**” proxy server will then call to the correct PSTN phone number.

In the reverse direction, if any user of the public proxy server dials into IPX-600 by calling the IPX-600’s registered number, this call will enter into the **Auto Attendant** announcement of IPX-600 or the selected user.

The screenshot shows the 'Call Route (Dial Plan)' configuration page. It features a table with columns: Pattern, Route via, Drop Digits, Prefix, and Action. There are two entries: 'default route' with a period pattern and 0 drop digits, and 'FXO-FWD' with a '9.' pattern, 'FWD' route, and 1 drop digit. There are buttons for Delete, Add, and Apply.

Figure 64. Call route example page

The second method is to put a FXO gateway in the LAN network and there could be two methods for

configuring IPX-600 to do the PSTN call:

- a. Configure the FXO gateway to register to IPX-600. If the FXO gateway registered to IPX-600 with the registered number as 0, then, any extension IP Phone can dial 0# to first connect to the gateway, and then dial the desired PSTN number. This is a two-stage dialing.
- b. If you want to configure a one-stage dialing, a call route with destination IP address pointed to the FXO gateway must be added in the **“Call Route”** list. The following figure shows the example configuration. In this way, the FXO gateway does not need to register to IPX-600.

Gateway					
<input type="checkbox"/>	Name	IP:Port	Number of Analog Ports	Gateway Location	Action
<input type="checkbox"/>	FXO-1	192.168.0.30:5060	4	LAN	<input type="button" value="Edit"/>

Figure 65. Gateway example page

Call Route (Dial Plan)					
	Pattern	Route via	Drop Digits	Prefix	Action
	default route	.	FXO-1	0	<input type="button" value="Edit"/>

Figure 66. Call route example page



# Appendix F

## Voice Communication Samples

The chapter shows you the concept and command to help you configure your SOHO IP PBX System through sample configuration. And provide several ways to make calls to desired destination in IPX-600. In this section, we'll lead you step by step to establish your first voice communication via web browsers operations.

### ATA and IP Phone register to IPX-600

In the following samples, we'll introduce ATA and IP Phone registers to IPX-600 applications.

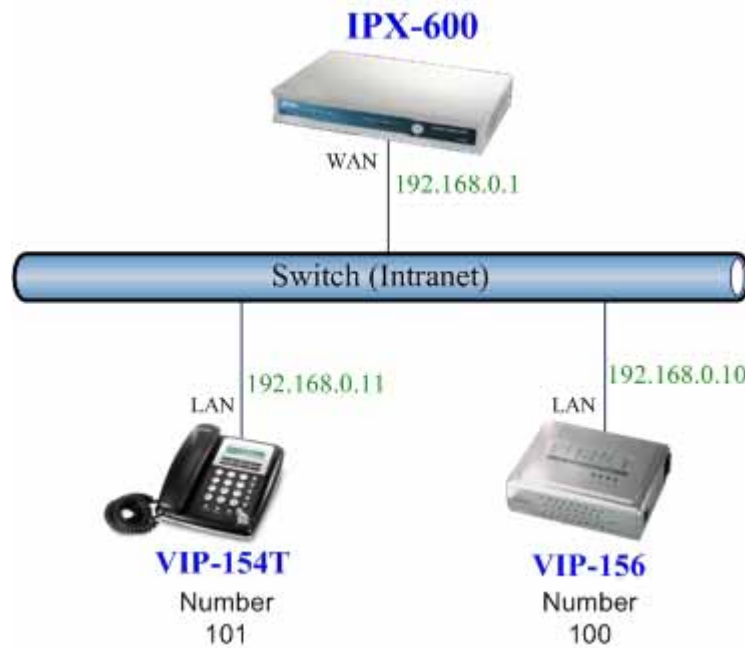


Figure 77. Topology of instruction example

Machine configuration:

#### STEP 1:

Please log in IPX-600 via web browser and browse to "IP PBX → Users Mgmt." configuration menu. There have four accounts in default settings.

User Management													
<input checked="" type="checkbox"/> DHCP Only for IP Phones: Total: 4 Users, Registered: 0 Users.													
Index		Call Status	Disp. Name	Number	Password	Call Group	Pickup Group	Hunt Group	Call Type	IP:Port	APS	VMWI (new/old)	Action
001	<input type="checkbox"/>		100	100	100	1	1	-	-	-	N	0/0	Edit
002	<input type="checkbox"/>		101	101	101	1	1	-	-	-	N	0/0	Edit
003	<input type="checkbox"/>		102	102	102	1	1	-	-	-	N	0/0	Edit
004	<input type="checkbox"/>		103	103	103	1	1	-	-	-	N	0/0	Edit
1													
<input type="button" value="Delete"/> <input type="button" value="Apply"/> <input type="button" value="Add User"/> <input type="button" value="Batch Add"/>													

Figure 78. User Management page of IPX-600



**STEP 2:**

Please log in VIP-154T and VIP-156 and browser to “SIP setting → Domain Service” configuration menu. Insert the account/password information then save and reboot machine. The sample configuration screen is shown below:

## Service Domain Settings

You could set information of service domains in this page.

Realm 1 (Default)	
Active:	<input checked="" type="radio"/> On <input type="radio"/> Off
Display Name:	100
Line Number:	100
Register Name:	100
Register Password:	●●●
Domain Server:	192.168.0.1
Proxy Server:	192.168.0.1
Outbound Proxy:	

*Note: A callout box points to the Display Name, Line Number, and Register Name fields, stating: "Date match with Figure 78. IPX-600's User Management"*

Figure 79. Web page of VIP-156

**STEP 3:**

After both of devices have registered to IPX-600 successfully, the **User Management** page will show the registration status:

User Management													
<input checked="" type="checkbox"/> DHCP Only for IP Phones: Total: 4 Users, Registered: 2 Users.													
Index		Call Status	Disp. Name	Number	Password	Call Group	Pickup Group	Hunt Group	Call Type	IP:Port	APS	VMWI (new/old)	Action
001	<input type="checkbox"/>		100	100	100	1	1	-	Local	192.168.0.10:5060	N	0/0	Edit
002	<input type="checkbox"/>		101	101	101	1	1	-	Local	192.168.0.11:5060	N	0/0	Edit
003	<input type="checkbox"/>		102	102	102	1	1	-	-	-	N	0/0	Edit
004	<input type="checkbox"/>		103	103	103	1	1	-	-	-	N	0/0	Edit

Figure 80. User Management page with Phone and ATA registered

**Test the scenario:**

1. VIP-156 pick up the telephone
2. Dial the number: **101**(VIP-154T) shall be able to connect to the VIP-154T
3. Then the VIP-154T should ring. Please repeat the same dialing steps on VIP-154T to establish the first voice communication from VIP-156

## ATA and IP Phone make off-Net calls via Gateway

In the following samples, we'll introduce VIP-154T and VIP-156 makes off-Net Calls (PSTN calls) via VIP-480FO applications.

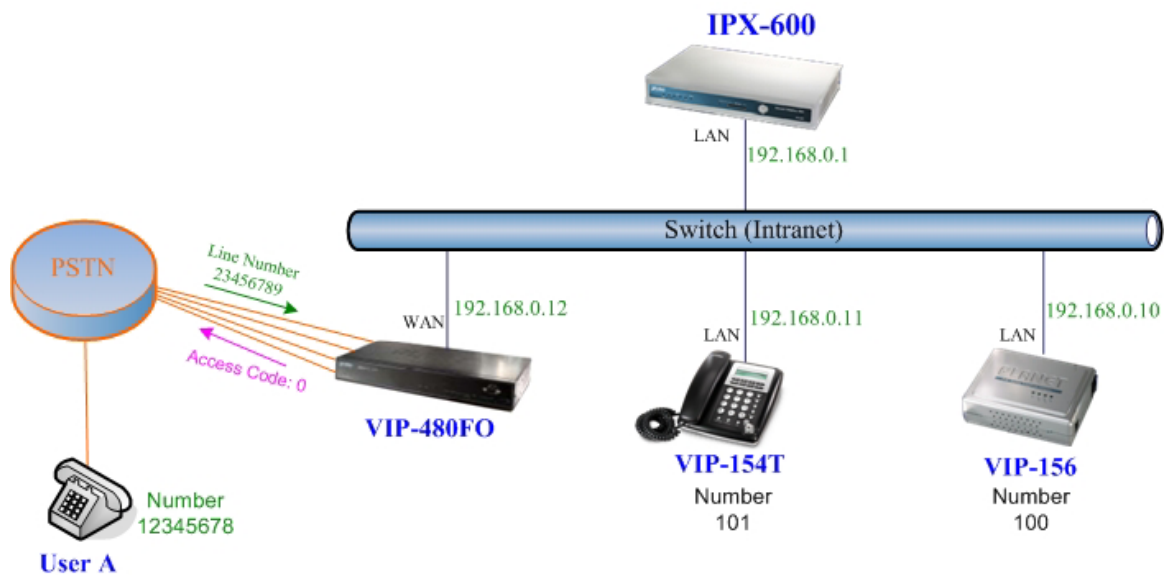


Figure 81. Installation example with VIP-480FO

### Machine configuration:

#### STEP 1:

Please refer to the first sample and let VIP-154T and VIP-156 register to IPX-600.

#### STEP 2:

Please log in IPX-600 via web browser and browse to "IP PBX → Users Mgmt." configuration menu. Press **Batch Add** button to add four accounts for VIP-480FO using.

Batch Add	
User Attributes	Values
First Number	200
Number of Users	4 users
Password	200 <input checked="" type="checkbox"/> Auto-increase
Call Group	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 <input type="checkbox"/> 13 <input type="checkbox"/> 14 <input type="checkbox"/> 15 <input type="checkbox"/> 16 <input type="checkbox"/> 17 <input type="checkbox"/> 18 <input type="checkbox"/> 19 <input type="checkbox"/> 20
Pickup Group	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 <input type="checkbox"/> 13 <input type="checkbox"/> 14 <input type="checkbox"/> 15 <input type="checkbox"/> 16 <input type="checkbox"/> 17 <input type="checkbox"/> 18 <input type="checkbox"/> 19 <input type="checkbox"/> 20
Call Forward Immediate	<input checked="" type="radio"/> Disable <input type="radio"/> Internal 100 <input type="radio"/> External
Call Forward on Busy	<input checked="" type="radio"/> Disable <input type="radio"/> Internal 100 <input type="radio"/> External
Call Forward on No Answer	<input checked="" type="radio"/> Disable <input type="radio"/> Internal 100 <input type="radio"/> External
MAC Address	00 : 00 : 00 : 00 : 00 : 00
APS	NO
Do Not Disturb	<input type="checkbox"/> Forward to VM
VM to E-mail	Disable E-mail <input type="checkbox"/> Delete VM after Send Attachment via E-mail
Goto VM after Ringing	10 seconds (10~60)
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Figure 82. Batch add accounts for VIP-480FO

**STEP 3:**

Browse to “IP PBX → Gateway” configuration menu. Add a gateway for VIP-480FO and the sample configuration screen is shown below:

Add Gateway	
Entry Attributes	Values
Name	VIP-480FO
Gateway IP	192.168.0.12
Gateway Port	5060 (1~65535)
Number of Analog Ports	4
Gateway Location	LAN
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Figure 83. Add new gateway to IPX-600

Pressing the “Apply” button for activate the configuration.

Gateway					
	Name	IP:Port	Number of Analog Ports	Gateway Location	Action
<input type="checkbox"/>	VIP-480FO	192.168.0.12:5060	4	LAN	<input type="button" value="Edit"/>
<input type="button" value="Delete"/> <input type="button" value="Add"/> <input type="button" value="Apply"/>					

Figure 84. Gateway page of IPX-600

**STEP 4:**

Browse to **“IP PBX → Call Route”** configuration menu. Add a call route for making off-Net calls via VIP-480FO.

Add Call Route (Dial Plan)	
Route Attributes	Values
Name	PSTN
Pattern	0
Route via	<input type="radio"/> Proxy Server <input checked="" type="radio"/> Gateway VIP-480FO
Drop Digits	1
Prefix	200
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

Figure 85. Add Call Route for grab the FXO ports of VIP-480FO

Pressing the **“Apply”** button for activate the configuration.

Call Route (Dial Plan)					
	Pattern	Route via	Drop Digits	Prefix	Action
<input type="checkbox"/>	default route	.	0		<input type="button" value="Edit"/>
<input type="checkbox"/>	PSTN	0	VIP-480FO	1	200 <input type="button" value="Edit"/>
<input type="button" value="Delete"/> <input type="button" value="Add"/> <input type="button" value="Apply"/>					

Figure 86. Call Route page of IPX-600

**STEP 5:**

Please log in VIP-480FO via web browser and browse to **“Advance Setup → VoIP Setup → VoIP Basic”** configuration menu. Insert the account/password information and set up the hunting function. The sample configuration screen is shown below:

Port Number / Password Setting(MAX 20 digit) :						
No.	Number	Reg	Account	Password	Register Status	Reason
1	200	<input checked="" type="checkbox"/>	200	...	Success	OK
2	201	<input checked="" type="checkbox"/>	201	...	Success	OK
3	202	<input checked="" type="checkbox"/>	202	...	Success	OK
4	203	<input checked="" type="checkbox"/>	203	...	Success	OK

Figure 87. Set up the number of FXO ports of VIP-480FO

**SIP Hunting Table :**

No.	Hunting Member
1	<input type="checkbox"/> Port 1 <input checked="" type="checkbox"/> Port 2 <input checked="" type="checkbox"/> Port 3 <input checked="" type="checkbox"/> Port 4
2	<input checked="" type="checkbox"/> Port 1 <input type="checkbox"/> Port 2 <input checked="" type="checkbox"/> Port 3 <input checked="" type="checkbox"/> Port 4
3	<input checked="" type="checkbox"/> Port 1 <input checked="" type="checkbox"/> Port 2 <input type="checkbox"/> Port 3 <input checked="" type="checkbox"/> Port 4
4	<input checked="" type="checkbox"/> Port 1 <input checked="" type="checkbox"/> Port 2 <input checked="" type="checkbox"/> Port 3 <input type="checkbox"/> Port 4

Figure 88. Set up the Hunting Member of FXO ports

**SIP Proxy Setting :**

Domain/Realm	192.168.0.1
SIP Proxy Server	192.168.0.1/5060 <input type="checkbox"/> use <b>net2phone</b>
Register Interval(seconds)	900
SIP Authentication	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Outbound Proxy Server	0.0.0.0

Figure 89. Set up the Proxy Server IP address for register to IPX-600

**STEP 6:**

Browse to **"Port Status"** configuration menu. Fill in the auto attendant number 9997 to all of ports.

Hot Line Number Setting (Hotline Setting)

Port 1 number	9997
Port 2 number	9997
Port 3 number	9997
Port 4 number	9997

Figure 90. Hot Line to auto-attendant of IPX-600

**STEP 7:**

After all of devices have registered to IPX-600 successfully, the **User Management** page will show the registration status:

User Management													
<input checked="" type="checkbox"/> DHCP Only for IP Phones: Total: 8 Users, Registered: 6 Users.													
Index	<input type="checkbox"/>	Call Status	Disp. Name	Number	Password	Call Group	Pickup Group	Hunt Group	Call Type	IP:Port	APS	VMWI (new/old)	Action
001	<input type="checkbox"/>		100	100	100	1	1	-	Local	192.168.0.10:5060	N	0/0	Edit
002	<input type="checkbox"/>		101	101	101	1	1	-	Local	192.168.0.11:5060	N	0/0	Edit
003	<input type="checkbox"/>		102	102	102	1	1	-	-	-	N	0/0	Edit
004	<input type="checkbox"/>		103	103	103	1	1	-	-	-	N	0/0	Edit
005	<input type="checkbox"/>		200	200	200	2	2	-	Local	192.168.0.12:5060	N	0/0	Edit
006	<input type="checkbox"/>		201	201	201	2	2	-	Local	192.168.0.12:5060	N	0/0	Edit
007	<input type="checkbox"/>		202	202	202	2	2	-	Local	192.168.0.12:5060	N	0/0	Edit
008	<input type="checkbox"/>		203	203	203	2	2	-	Local	192.168.0.12:5060	N	0/0	Edit

Figure 91. User Management page with Phone / ATA and Gateway registered

**Test the scenario:**

1. VIP-156 pick up the telephone
2. Dial the number: **0** shall be able to connect to the port 1 of VIP-480FO
3. Then the telephone will hear the dial tone from PSTN lines, and dial the number: **12345678** shall be able connect to the User A.
4. Then the telephone of User A will ringing, then User A pick up the phone set and talk with VIP-156.
5. Both VIP-156 and User A hang up the calls.
6. User A pick up the telephone and dial the number: **23456789** should be able to connect to the Auto Attendant System of IPX-600.
7. The User A will hear the prompts, and dial the extension number: 100 shall be able connect to the VIP-156.
8. Then the VIP-156 should ringing, then it pink up the call and talk with User A.

# Appendix G

## Specifications

Product	SOHO Internet Telephony PBX System
Model	IPX-600
Hardware	
LAN	4 RJ-45 (10/100Base-TX, Auto-Sensing/Switching)
WAN	1 RJ-45 (10/100Base-TX, Auto-Sensing/Switching)
Standards and protocol	
Call control	SIP 2.0 (RFC 3261)
Registration	Max. 200 nodes / SIP IP phones / FXO gateways
Calls	Max. 60 concurrent calls
Voice CODEC support	G.711, G.723.1 (5.3, 6.3kbps), G.729A (8kbps)
Voice processing	DTMF detection/generation Support password authentication using MD5 digest
PBX features	Automated Attendant (AA) Interactive Voice Response (IVR) Voicemail Support Record IVR via Phone / Upload IVR via Web Browser Embedded SMTP Server That Can Send Voicemail notification Voicemail Attached via Email Visual Indicator for Message Waiting Voicemail Notification via SUBSCRIBE/NOTIFY Personal Voicemail Greeting DID to User DID to Hunting Group – Round Robin, Parallel, Random Least Cost of Call Routing (20) Detailed Call Record User Management via Web Browser Call/Pickup Group Display 200 Registered User's Status: Unregistered / Registered / On-Call Outgoing Call Block List (10)
Call features	Call Forward Immediate, Call Forward on Busy, Call Forward on No Answer Do Not Disturb (Forward to Voicemail) Direct Inward Dialing (DID) Call Pickup, Call Park, Call Retrieval, Caller ID, Dial By Name Roaming Extensions Music on Hold / Music on Transfer Call Queuing, Call Transfer, Call Hold, Call Waiting Three-way conference with feature phones (VIP-154T series, VIP-155PT and ATA series)
Internet Sharing	
Protocol	TCP/IP, UDP/RTP/RTCP, HTTP, ICMP, ARP, NAT, DHCP, PPPoE, DNS
Advanced Function	Virtual Server / DMZ / Special Application, Static Route, Access Control / URL Filter, DHCP Server for LAN Users, DoS, Pass-through, UPnP
Network and Configuration	
Connection type	Static IP, PPPoE, DHCP
Management	HTTP Web Browser
LED Indications	System: 2, PWR, SD WAN: 1, LAN/ACT LAN: 4, LNK/ACT
Environment	
Dimension (W x D x H)	242 x 174 x 36 mm
Operating Temperature	0~40 degree C, 10~95% humidity
Power Requirement	100~240V AC 50/60Hz
EMC/EMI	CE, FCC Class B